

AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

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JUNE 1917 VOL. 23

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REAL ESTATE



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3,520,000	Yellow Pine
1,680,000	Red Oak
1,560,000	White Oak
1,000,000	White Ash
790,000	Hickory
680,000	Sycamore
670,000	Maple
560,000	Elm
460,000	Cottonwood
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Deposit With bid \$5000, to apply on purchase price if bid is accepted, or refunded if rejected. Ten per cent may be retained as forfeit if the contract and bond are not executed within the required time.

Final Date For Bids Sealed bids will be received by the District Forester, Portland, Oregon, up to and including May 14, 1917.

The right to reject any and all bids is reserved.

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DISTRICT FORESTER
or the
FOREST SUPERVISOR
PORTLAND, OREGON

REAL ESTATE

FORESTS : ESTATES : TIMBERLANDS
PRESERVES : FARMS : CAMPS : ETC.



Do you know that in the State of New Hampshire there are 635 lakes and ponds and over 10,000 miles of rivers? In addition there are thousands of miles of trout streams. The average visitor to the so-called "White Mountain Region" sees but a fraction of these lakes and streams. They compose the real beauty of New Hampshire scenery and they lie but a short distance from the main travelled boulevards of the State, most of them south of the Presidential Range.

The picture at the top of this page is a glimpse of one end of Lake Tarleton, in the Lake Tarleton Club preserve of 5000 acres. There are five lakes and over three thousand acres of forest in this preserve. Within a radius of fifteen miles from Lake Tarleton Club House are forty lakes and ponds and over ninety streams. All this delightful wilderness of lake and forest is absolutely secluded and yet within twenty minutes' automobile drive of express trains from New York and Boston. *It is four hours nearer New York City than the chief resorts of the Adirondacks.*

I own several hill farms within a few miles of this delightful resort which command unsurpassed views of lake and mountain and are ideally situated for summer homes, for fish and game preserves, or for practical self-supporting

farms. Most of them are well-timbered and were purchased because of scenic and timber values. Several of them have trout brooks and lake area within their boundaries and sufficient timber growth to repay the purchase price if properly handled. I will sell these at favorable prices and terms to parties wishing to establish summer homes or to follow practical forestry methods in protecting the timber growth. Larger timbered areas can be procured in the neighborhood of several of them if desired.

I own several timber tracts in New Hampshire and Vermont, without farms, varying in size from 100 to 2500 acres, well covered with spruce, pine, and hardwood growths suitable either for saw mill or pulp operations.

I also have for sale a 5000-acre tract of second growth yellow pine in Jefferson and Grant Counties, Arkansas, about ten miles west of the City of Pine Bluff. There are estimated to be twenty-five million feet of yellow pine and several million feet of oak and red gum on this tract.

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SALE OF TIMBER FLATHEAD INDIAN RESERVATION

SEALED BIDS MARKED OUTSIDE "BIL Flathead Timber, Ronan Unit" and addressed to Superintendent of the Flathead Indian School, Dixon, Montana, will be received until twelve o'clock noon, Mountain time, Tuesday, September 11, 1917, for the purchase of the merchantable timber upon tribal and allotted lands situated within Sections 4 and 5 T. 19 N., R. 19 W.; Sections 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 32, 33, and 34 T. 20 N., R. 19 W.; Section 21, 22, 27, 32, 33, and 34, T. 21 N., R. 19 W.; Section 1 and Section 12 T. 20 N., R. 20 W. M. P. M. containing approximately 57,000,000 feet of timber, over 80 per cent Western Yellow Pine. Each bid shall state the amount per thousand feet B. M. offered for Yellow Pine (including "bull pine") and the amount per thousand feet offered for Fir, Larch and other species. Each bid must be submitted in triplicate and be accompanied by a certified check on a solvent national bank, drawn in favor of the Superintendent of the Flathead Indian School, in the amount of \$2500. The deposit will be returned if the bid is rejected, and retained as a forfeit if the bid is accepted and the bond and agreements required by the regulations are not furnished within 60 days from the date when the bid is accepted. No bid of less than \$3 per thousand feet for Yellow Pine and \$1.25 per thousand feet for Douglas Fir, Larch and other species will be accepted. The right to reject any and all bids is reserved. Copies of regulations and other information regarding the proposed sale including specific description of the sale area may be obtained from the Superintendent of the Flathead Indian School, Dixon, Montana.

Washington, D. C., May 4, 1917. CATO SELLS, Commissioner of Indian Affairs.

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A FORESTRY REGIMENT IN ACTION

"SOMEWHERE in France," a full regiment of trained American woodsmen will soon be at work aiding the cause of the Allies. The United States Forest Service, at the request of the War Department, prepared plans for the organization and is recruiting the men. These men form a part of the Engineers' Reserve Corps, organized for special duty behind the battle lines on the Western front and the units of which are going into service as fast as they can be equipped. The speed and efficiency which have characterized the formation of this regiment give evidence of the wholehearted and thorough way the American people are "coming across," now that they have been drawn into the titanic struggle against the enemies of democracy. Swift and sure American business methods can be counted on to do the will of the people with dispatch.

A few days after President Wilson's proclamation that a state of war existed between the United States and Germany, a census of

the trained foresters and woodsmen of the country was begun by the United States Forest Service in conjunction with state forestry boards and forest protective associations all over the country. The purpose was double, it being considered as necessary to furnish adequate protection for the forests of the country as to furnish men to serve the nation's need in military organizations. The men were urged to refrain from rushing into military organizations without giving consideration to the question as to what they were best fitted to do. As a result the special abilities of these men were not lost through random enlistment and are now available to fill the urgent need which our Allies, through Mr. Balfour, of the British Commission, inform us exists and ask us to meet.

The regiment is organized in units capable of handling all kinds of woods work, and includes a number of portable sawmill outfits and complete equipment for every phase of a lumbering operation. It will be officered by trained foresters and expert lumbermen who are thoroughly familiar with producing and delivering lumber. The Forest Service is exercising great care in selecting the men, striving to get the most skilful workers in the several specialized lines of woods and mill work, and it is stated

that this will be the finest body of experts that it is possible to gather. The classes of men in the ranks comprise axemen, teamsters, skidders, loaders, scalers, tie-hewers, millwrights, saw-filers, sawyers, engineers, portable sawmill men, blacksmiths, lumberjacks, and carpenters, as well as motorcycle and motor truck operators. In addition, there are a number of cooks, commissary experts, clerks, etc., for maintaining the large camps necessary in connection with the woods operations.

Although the regiment is organized by the Forest Service and officered by forestry experts who have received their training in Government or State service, the supreme command is in the hands of an army officer appointed by the War Department and the entire regiment is organized on the military plan and is under military law.

The men are furnished with the regular army uniforms, a necessity in the war zone in order to insure their treatment as prisoners

of war in case of capture by the enemy. Every man has enlisted in the regiment for four years, but active service will be required for only such part of that period as may be necessary. The rules for enlistment require that a man be between the ages of eighteen and forty-five, be a citizen of the United States or have declared his intention to become such, be physically sound and pass the regular military physical examination.

Pay of enlisted men, as well as officers, begins at date of enlistment, and traveling expenses from the place of enlistment to the training camp are met by the Government. The salaries of officers are the same as those received by officers of corresponding rank in other branches of the military service, while those of enlisted men are as shown in table on following page.

The regiment is made up of six companies of 164 men each, with twenty-six men on the battalion and regimental staffs and a driver for each vehicle, in addition to the commissioned officers. The enlisted men will include: six first sergeants, 18 sergeants, first-class, 1 sergeant bugler, 50 sergeants, 6 stable sergeants, 6 supply sergeants, 6 mess sergeants, 2 color sergeants, 19 cooks, 6 horse-shoers, 108 corporals, 6 saddlers, 27 wagoners, 186 pri-



FOREST REGIMENT FLAG

The proposed flag for the regiment of United States expert woodsmen, which will soon be seen in France.

vates, first-class, 558 privates, second class, 12 buglers. It is being mobilized in six companies, three being trained at the engineering training camp at Fort Leavenworth, Kansas, and the other three at American University, Washington, D. C.

SALARIES OF ENLISTED MEN

Grade	Monthly pay in U. S.	Monthly pay Foreign service
Master engineer, senior grade	\$81.00	\$97.20
Master engineer, junior grade	71.00	85.20
Regimental sergeant major	51.00	61.20
Regimental supply sergeant	51.00	61.20
Battalion sergeant major	51.00	61.20
Battalion supply sergeant	51.00	61.20
Sergeant, first-class	51.00	61.20
Sergeant bugler	48.00	57.60
Sergeant	44.00	52.80
Stable sergeant	44.00	52.80
Supply sergeant	44.00	52.80
Mess sergeant	44.00	52.80
Color sergeant	44.00	52.80
Cook	38.00	45.60
Horseshoer	38.00	45.60
Corporal	36.00	43.20
Saddler	36.00	43.20
Wagoner	36.00	43.20
Private, first-class	33.00	39.60
Private, second-class	30.00	36.00

Listing of applicants for service in the regiment is in the hands of the following forest officers. This listing does not insure final acceptance of the applicant, as it may be necessary to reject some of the men listed for physical defects or for other reasons:

F. H. Colby, Forest Commissioner, Augusta, Maine; J. S. Benedict, United States Forest Service, Gorham, New Hampshire; E. C. Hirst, State Forester, Concord, New Hampshire; Harris A. Reynolds, 4 Joy Street, Boston, Massachusetts; W. O. Filley, State Forester, New Haven, Connecticut; C. R. Pettis, superintendent of State forests, Albany, New York; J. S. Illick, Pennsylvania Department of Forestry, State Forest Academy, Mont Alto, Pennsylvania; F. W. Besley, State Forester, Johns Hopkins University, Baltimore, Maryland; H. L. Johnson, United States Forest Service, Elkins, West Virginia; S. H. Marsh, United States Forest Service, Harrisonburg, Virginia; Verne Rhoades, United States Forest Service, Asheville, North Carolina; H. G. Spahr, United States Forest Service, Blue Ridge, Georgia; E. P. Bushnell, United States Forest Service, Johnson City, Tennessee; Edmund Secrest, State Forester, Wooster, Ohio; T. B. Wyman, Munising, Michigan; W. T. Cox, State Forester, St. Paul, Minnesota; G. E. Marshall, United States Forest Service, Cass Lake, Minnesota; F. B. Moody, Conservation Commissioner, Madison, Wisconsin; J. H. Foster, State Forester, College Station, Texas; The Forester, United States Forest Service, Washington, D. C.; District Forester, United States Forest Service, Federal Building, Missoula, Montana; District Forester, United States Forest Service, New Federal Building, Denver,

Colorado; District Forester, United States Forest Service, Gas and Electric Building, Albuquerque, New Mexico; District Forester, United States Forest Service, Forest Service Building, Ogden, Utah; District Forester, United States Forest Service, 114 Sansome Street, San Francisco, California; District Forester, United States Forest Service, Beck Building, Portland, Oregon.

The duty of this regiment will be the cutting of timber and its manufacture into the forms needed for military use. Railroad ties will be produced in large quantities for repairing the French railroads. Military use, coupled with a lack of men available for railroad work, has resulted in rapid deterioration of the railroads leading up to the front. A good deal of the timber cut will be used for bridge construction and large quantities must also be produced for trench timbers. The arts of peace must be pushed, too, in order to make successful prosecution of the war possible, so a good deal of lumber will be produced for building operations as well as for mine props and cordwood.

The location of the field of operations is not made known for military reasons. The work will be done, however, in the French forests of oak, beech, hornbeam and other hardwoods, with occasional stands of pine. The timber in these areas is small in comparison with that of most American forests, much of it being only eight to twelve inches in diameter. In character these lands are much like the woodlots of Southern New England, and on the whole the operations will be similar to portable sawmill logging in Massachusetts, Connecticut, Maryland, and Virginia.

France has managed her forests scientifically for a great many years, using them on the permanent, sustained yield basis. Although the exigencies of the war put the timber needs far above the yield, every possible means will be used to reduce waste to the absolute minimum and thus preserve as much of the forest as possible for future production. The American regiment will therefore be called upon not only to turn out the lumber at high speed, but to do it with high efficiency as well. The condition of the forests after the selective cutting operation has been completed will tell more plainly than words how well the American woodsmen know their business. The personnel of the regiment allows no doubt that the work will be done thoroughly and with speed, as well as on correct scientific principles.

As the magazine goes to press, the Forest Service announces that it is prepared to organize one or more additional regiments if they are needed. Indications are that more will be needed, and in that case the men will be recruited as soon as the organization of the first regiment is completed. Since the first announcement of the organization of this body of expert woodsmen was made, the offices of the Forest Service and the American Forestry Association have been flooded with inquiries and applications from every section of the country. The eagerness of the men to serve makes it certain that as many regiments as are needed will be recruited without delay.

So a considerable part of America's part in the war will be an intensive application of the principles of civilization, conservation and construction.

SAWMILL UNITS FOR ENGLAND'S NEED

ALMOST immediately after the entry of the United States into the European war an opportunity was afforded for American forestry and lumber interests to give practical example of American enterprise and efficiency in extending substantial aid to our allies overseas.

In no individual instance, perhaps, will the helpful activity of this country be better illustrated than in the extension of assistance to the British Government in the solution of serious problems involving timber supply for its forces in France. The response to the English need was given with a swiftness and efficiency characteristic of the American forester and lumberman. No time was wasted and there was no lost motion in achieving tangible results. The whole thing was worked out within 24 hours and the machinery placed in action to make the contribution immediately effective.

The British need was for skilled lumbermen and equipment. Because of a lack of these factors the forces in France were seriously handicapped. Knowledge of this condition came to the Massachusetts Committee on Public Safety and it was immediately realized that the only way in which effective assistance could be given was through sending men and equipment direct to England. Inadequate shipping facilities made it impossible to send the lumber itself. For this reason it was proposed that New England raise ten portable sawmill and logging units and turn them over to the British authorities.

The proposal was at once cabled to London. Through the British Embassy at Washington a cablegram was received from the War Office indicating pleased acceptance of the offer and stating that transport facilities would be provided by the British Government. The project received the unofficial approval of Secretary of War Baker and the enthusiastic and active coöperation of the Governors of all the New England states.

To work out the details of the undertaking and to make its operation effective the Massachusetts Committee on Public Safety appointed a committee of which the chairman was W. R. Brown, of Berlin, New Hampshire, a director of the American Forestry Association and a member of the Lumber Committee of the Council of National Defense. Mr. Brown is also president of the New Hampshire Timberland Owners' Association. The other members of the committee were:

James J. Phelan, Vice-Chairman, Massachusetts Committee on Public Safety; Harold G. Philbrook, Treasurer, Vice-President, Connecticut Valley Lumber Company; F. W. Rane, Secretary, State Forester of Massachusetts; George S. Lewis, Treasurer, Connecticut Valley Lumber Company; Philip T. Dodge, International Paper Company; H. W. Blanchard, H. W. Blanchard Lumber Company; Garrett Schenck, Great Northern Paper Company; Hon. Herbert B. Moulton, Parker and Young Company; I. B. Hosford, St. Croix Paper Company; Martin A. Brown, Woodstock Lumber Company; George E. Henry, J. E. Henry and Sons; Samuel H. Boardman, President Eastern

Shook and Wooden Box Association; J. M. Parker, St. John Lumber Company; Marshall T. Wood, Lande Manufacturing Company; H. B. Stebbins, H. B. Stebbins Lumber Company; Chester C. Whitney, Perry Whitney Lumber Company; J. H. Hustis, Receiver, Boston and Maine Railroad; L. S. Tainter, Conway Lumber Company; E. C. Hirst, New Hampshire State Forester; Forest H. Colby, Maine State Forester; W. O. Filley, Connecticut State Forester; J. B. Mowry, Rhode Island State Forester.

It is significant of the scope and influence of the American Forestry Association that of the 23 members of this committee twelve are members of the Association. This representation includes, in addition to Chairman Brown, Messrs Philbrook, Rane, Dodge, Blanchard, Martin A. Brown, Henry, Tainter, Hirst, Colby, Filley and Mowry. On subcommittees appointed for handling details the American Forestry Association was represented by Blaine Viles and W. J. Lannigan.

An idea of the speed and effectiveness of the committee's work is given in the statement that the first meeting was held on May 17 and that within less than a week formal announcement was made of complete readiness. The men and equipment were sent to England very soon afterwards. In this promptness of action and in the perfection of organization the undertaking has shown our allies that American coöperation in the European war is to be fully depended upon to meet emergencies as they may arise.

To send ten units for sawmill and logging operations in England involved the raising of a fund of \$120,000. The cost of each unit is placed at \$12,000. This money was provided overnight. Through its Governor and its committee on public safety each of the New England states subscribed the sum required for a single unit. With six units thus provided for, there was no difficulty in raising funds for the four remaining units by private subscription among the paper manufacturers, lumbermen and timberland owners of New England. Because of these contributions, as well as because of the fact that almost the entire membership of the committee is made up of timber owners and foresters, the sawmill and logging units are identified as the gift of the New England timber interests to the British Government.

The thoroughness with which the committee worked out the details of the enterprise is indicative of the spirit with which the whole matter was undertaken. In submitting the plans Chairman Brown presented six closely typed pages showing the exact requirements of each unit. These needs included everything that would be wanted in a sawmill and logging camp, from a portable 50 or 60 horsepower engine and boiler, a rotary sawmill which can saw up to 20-foot lengths, four saws, 2000 extra teeth, to an exact specified number of each of the hundreds of spare parts, mill supplies and tools and articles needed for felling equipment, hauling equipment, construction and repair equipment and camp equipment. This exactness extended even

to three dozen lamp wicks for each camp, 1½ dozen lamp chimneys, two six-quart bean pots, a couple of can openers, half a dozen salt shakers and the almost countless domestic articles that a camp must have. These things are mentioned as indicating the careful attention given the details by some of the busiest men in New England.

The man-power of the ten units amounts to close to 400. For general supervision there is a general manager, a bookkeeper, an engineer and millwright, a storekeeper and purchasing agent and a secretary and stenographer, and for each camp a timekeeper and bookkeeper. For the logging

crew each unit has 25 men and for the mill crew nine men. Horses to the number of 120 were taken, with harness and stable equipment.

Through the British Embassy arrangements were made that the men should work as civilians, under contract for one year, that their wages should be paid from the time of sailing, that they are to be provided with board, lodging and medical attendance, and transportation to and from England, that they are to be employed only in the United Kingdom and that they are to do logging and millwork exclusively.

WAR, FORESTS AND LUMBER

THE national importance of America's forest resources and the technical skill of her forestry experts have never been so emphasized as by the emergency brought about through this country's participation in the European war. Every phase of the situation is in some way closely interwoven with and dependent on our lumber supply. Without this natural wealth of our forests and the ability to make it quickly available there would be paralysis of our best effort.

Whether it be the need for ships for the transportation of foodstuffs and munitions, the need for the construction of vast camps for the training and concentration of the army or any one of the many activities looking toward armed, industrial and economic preparedness, American lumber is one of the foundations of American participation in the war. Hand in hand with this is the need for the active assistance of men trained in forestry and lumber operations for swiftly, surely and wisely handling the vast supply of lumber that must be utilized. In the present situation this human resource is as vital as the lumber itself.

Through the coöperation of the Federal Shipping Commission and the Lumber Committee of the Council of National Defense the grave problems involving the Government's lumber supply for war-time needs are being reduced to their simplest terms. That the solution will prove adequate there appears to be no room for doubt. The work already accomplished and the program prepared make it clear to those familiar with the situation that the country has been placed in position to meet the emergency in the quickest and most efficient manner.

The Lumber Committee is made up of men representative of the best spirit of the American lumber industry. They are men of vast private interests, who have dropped their own work and submerged their own affairs into an earnest effort to be of service to the nation. Efficiency is the committee's central thought. As to business capacity, thoroughness and expert knowledge, as well as to patriotism, this committee affords exemplification of the extent to which the Government is receiving constructive assistance at the hands of the public-spirited business men of America. In no branch of its work is the Council of Defense being given help that is more vital or more valuable than in connection with forestry and lumber.

THE essence of this country's present helpfulness toward its European Allies in the great war is in the matter of food supply. We have the foodstuffs and we are providing Europe with funds with which to pay for them. To make this combination of merchandise and buying power of definite value the fundamental need is shipping facilities. Through the activities of enemy submarines the available supply of ships has been greatly diminished, and as this destruction proceeds the need for added tonnage becomes greatly emphasized. It is in the effort to help supply this need as swiftly as possible and at the same time provide for the adequate care of the internal needs of our own Government and private enterprise that the Lumber Committee is doing a big work and doing it well.

Lumber is needed by the Government in tremendous quantities. The building of a thousand wooden vessels now being undertaken by the Federal Shipping Commission will require more than 1,000,000,000 feet. Construction of barracks and other building operations of the army and navy will greatly increase the volume needed for public use. In the aggregate the official requirements are creating a sudden and unusual demand for lumber to the extent of approximately 2,000,000,000 feet. In the handling of this tremendous order the expert counsel and planning of Forestry experts and trained lumbermen are essential.

Without this coöperation the Government problem would be intensified and the lumber trade would suffer demoralization. To make such demand for material on an industry normally unorganized, broken up into thousands of unrelated units and widely scattered geographically, would bring about a condition that would seriously hamper the Government in its efforts to meet the emergency. It is to overcome this lack of organization and to bring about coördination that the Lumber Committee has concentrated its efforts.

One of the fundamentals in handling the situation and solving the problem was the application of expert knowledge of forestry. First-hand knowledge of the country's available supply of timber and its accessibility was the thing upon which all the work of the committee must be based. Obviously this intimate information could be furnished by none others than men trained along technical

forestry lines. For this reason it was inevitable that the man-power of the American Forestry Association should be generously drafted into the work of the Council of Defense through its Lumber Committee. This draft has given the Council the benefit of the skill and experience of such individual members of the Association as R. H. Downman, of New Orleans, who was made chairman of the committee; Henry S. Graves, chief forester of the United States and vice-president of the Association, and E. T. Allen, of Portland, Oregon, and W. R. Brown, of Berlin, New Hampshire, directors of the Association. These experts are all members of the committee, as are the following named members of the Association: G. S. Long, of Tacoma, Washington; Charles S. Keith, of Kansas City; C. H. Worcester, of Chicago, and W. H. Sullivan, of Bogalusa, Louisiana. In his work as a member of the committee Forester Graves has the active assistance of William B. Greeley, assistant Forester of the United States, who is a director of the American Forestry Association. On the Federal Shipping Commission the directorate of the Association is represented by Capt. J. B. White, of Kansas City, a recognized authority on Lumber Conservation and utilization. This list indicates the importance of the American Forestry Association's contribution to the national work.

An important result already achieved by the Lumber Committee is in the matter of purchases of lumber for building the big new army cantonments. Through the work of the committee the Government has been placed in position to save from \$3 to \$5 a thousand as against the prevailing market prices in the several sections from which the lumber will be taken. The basis is not one of arbitrary price fixing, but of informal agreements assuring a maximum price varying according to cost of production in different parts of the country and the grades of lumber involved. As the building contractors will be paid a fixed percentage of the cost of construction the Government will reap another direct advantage of the lower lumber cost, making possible a vast saving in addition to that involved in the purchases themselves. The arrangement between the Lumber Committee and the lumbermen is so elastic that it will leave the Government entire freedom of choice in placing orders, while contractors purchasing direct on emergency requirements will have the names of dealers with whom they can deal at Government prices.

THE committee has also concentrated on arranging a proper apportionment of the lumber in the individual cantonment districts so as to avoid waste in transportation. Through improved specifications, a carefully worked out disposition of supply sources and railroad facilities it has been conservatively estimated, according to a bulletin of the Government Committee on Public Information, that the Lumber Committee has already saved the Government at least \$5,000,000 in addition to the saving through price agreements.

It is not only through their forestry knowledge and training but through their familiarity with lumber manufacture and transportation problems as well that these men are giving the Council of National Defense and the Shipping Commission a measure of helpfulness that cannot be computed in dollars and cents. The real gauge of

this assistance will be in the efficiency which it will make possible in prompt meeting of the requirements for lumber and simplification of the problems of distribution, no less than in the money that may be saved to the Government through centralized purchasing and voluntary coöperation on the part of the lumber interests of the country.

One of the primary needs of the situation, as pointed out by the Lumber Committee, is that the Government should adapt its requirements, as far as possible, to existing lumber stocks and manufacturing conditions, to the end that delays may be prevented, cost minimized and the best possible output achieved. Another basic need is the prevention of extreme inflation in prices, which would normally follow such a sudden increase in demand. It is figured that this inflation might readily increase the cost of the lumber needed for public use to the extent of \$5,000,000 or more and at the same time work a hardship on private consumers.

CAREFUL handling of transportation is another vital point in the situation. The Committee recognizes the importance of eliminating cross-shipments of lumber, doing away with unnecessary long hauls and in every way holding transportation cost to a minimum. It is pointed out that transportation charges might easily be increased 25 per cent or more by the haphazard placing of orders, and that this increased expenditure would be incidental to the general loss involved in a failure to achieve the maximum use of the country's transportation facilities.

Correlation of the requirements of the various Departments and the needs for different classes of lumber is another point to which the Committee has given careful attention. This calls for systematic planning as far in advance of deliveries as may be possible. In order that available stocks may be best utilized and lumber manufacture best adapted to the products to be needed by the Government it is deemed necessary that all requisitions be brought together and orders placed, as far as practicable, with regard to the whole list rather than individual items. One example of the application of this method is to be found in the plan that the large volume of small dimension lumber and boards necessarily produced in manufacturing ship timbers for the emergency fleet should be used as far as possible in the construction of cantonments and other purposes for which they may be suited. It is foreseen that unless all public needs for lumber be thus tied together there is certain to be serious delay in supplying some of these needs and a greater or less disruption of normal manufacturing conditions, with resultant decrease of output and increase of cost.

To overcome the various difficulties necessitates co-operation of Government, lumber manufacturers and lumber trade organizations to insure the production of the necessary grades and quantities, stabilize prices and provide for the most direct deliveries. To make this co-operation effective requires that the lumber needs of the Government be brought together at one central point.

In order to accomplish these important objects the Lumber Committee has suggested that it serve as a clear-

ing-house on the lumber requirements of all Government Departments, with a view to centralizing orders and purchases as far as may be practicable. Representing every large lumber producing region of the country, together with the organization and facilities of the United States Forest Service, the committee believes that its services can be best utilized and the Government's lumber requirements most effectively met under a program carefully planned through its deliberations.

The first step in this program calls for submission to the committee by each Department or Bureau, as far in advance of necessary deliveries as possible, of all anticipated lumber requirements of material quantities. These references should include data on proposed use, specifications and time and place of delivery. After consideration of the specifications the Lumber Committee will promptly advise with the Department or Bureau, with a view to adjusting the needs to fit current lumber stocks or manufacturing conditions. Suggestion will be made as to specific commercial grades, based upon the current rules of lumber manufacturers' associations, which will meet the specifications at a minimum cost.

As another step the committee will stand ready to advise the Department or Bureau as to the best manner of making its purchases, either from designated manufacturers or associations known to be in the best position to furnish the materials promptly and at a minimum trans-

portation cost, or from local distributing yards in the case of smaller and emergency orders.

ONE of the most important functions of the committee, as planned, is in the matter of prices. With intimate knowledge of trade conditions and all sources of supply, the committee will be in position to give advice as to the prices at which materials can be procured or as to the maximum prices which it is equitable for the Government to pay. Methods of procedure that will insure the most favorable prices and deliveries at the lowest cost within the time limits necessary will be suggested in each specific instance. Further suggestions will be made, when desirable, regarding methods of inspection and other details that will fully protect the interests of the Government.

The results achieved by the committee will be shown in reports of all its activities, with specific lists of lumber orders placed, and with full information as to prices and terms, filed periodically with the Advisory Commission to the Council of National Defense through the committee on raw materials of which the Lumber Committee is a part.

This outline of the work proposed for itself by the Lumber Committee makes obvious the intent to develop the centralized purchase of lumber required by the various branches of the Government and to avoid the losses and delays which are considered inevitable under decentralized and unsystematic handling of this large volume of business.



Guy E. Mitchell

SANTA CRUZ NATURAL BRIDGE (BEFORE THE DAWN OF LIFE)

One of the most perfect of natural bridges, appearing almost like an artificial tunnel, is found in Santa Cruz County, California. The top of the bridge is used as a driveway, as is shown in the picture. The exposure of the rock made by the natural undercutting of this bridge by the ocean waves beating on the shore discloses to the trained eye an interesting phase of the formation of this part of the country. The lower or darker portion of the rock forming the bridge is shale, young geologically, but of great age as computed in years or centuries. The upper fifteen feet, which, as shown in the photograph, is of lighter shade, was deposited in the age immediately preceding the one in which we live. This surface material was deposited by the rushing streams fed from the great glaciers which lay in the mountains of the Sierra to the east.

LIGNUM VITAE IN CURAÇAO

BY MILES HAMAN

PRACTICALLY every American who is at all familiar with the common commercial woods has seen and handled Lignum Vitæ, or, as it is commonly called from Havana to Buenos Aires, guayacan. To those who are unfamiliar with this wood and its uses, it would be of interest to look closely at the next bowling-ball, pulley-block, or wooden bed caster and one will be pretty sure to find a close-grained, heavy, green wood with an oily surface which bears, in English-speaking countries, the name of Lignum Vitæ. Though the wood is thus in common use and well known, but few have ever seen the tree in its native surroundings.

There are a number of species, but perhaps the most common are *Guayacum sanctum* and *Guayacum officinale*, of the West Indian Islands. Closely related genera of the same family are found in the Argentine Chaco, where it is a much prized fire-wood of the Indians. Many a soldier and ex-

somewhat moderated by the trade winds; and the island is out of the Caribbean region most affected by hurricanes.

The region is one of extreme drought. The average rainfall is less than ten inches and records of no precipitation at all for an entire year are not uncommon.

Huge tree cacti, *Cereus*, *Opuntia* and *Melocactus*, thorny shrubs and such plants as are common to the Arizona-Cal-



LIGNUM VITÆ, OR GUAYACUM, IN ITS NATIVE SURROUNDINGS
The heat is very great but modified by trade winds and the region is one of extreme drought, the average rainfall being less than ten inches, and records of no precipitation at all for a whole year are not uncommon. The huge cacti and thorny shrubs thriving nearby testify to these conditions.

plorer of this region has cooked his meal with knots and splinters of guayacan, or used it as a torch. In Spanish-speaking countries the true Lignum Vitæ is much confused with the group of very hard woods belonging to the Leguminosæ—closely related to our black locust. These woods bear the same name of guayacan, and are widely used, but lack the peculiar qualities which are characteristic of the true guayacan.

On the Island of Curaçao, Dutch West Indies, just off the Venezuelan coast, and far down on the point where the work of forest destruction has progressed the least, one may see Lignum Vitæ in its native home.

The island is one of gently rolling topography with but three points, St. Christopher, the Castle Mountains and the Three Brothers, rising well above the general level, and it is at medium elevations that guayacan is most commonly found. The heat here is great, though



SHOWING DETAIL OF THE PECULIAR BARK OF THE LIGNUM VITÆ
The wood is close-grained, heavy and very hard, and the tree, with its richly colored dark green leaves, its blue flowers and orange-red fruits, is in striking contrast to its arid surroundings.

ifornia desert region are the common associates of guayacan. It grows in places as unlikely for tree growth as one can find.

Not only is guayacan important commercially, but it has proved its worth as an ornamental tree. Not to be outdone by mahogany, which has been planted as a shade tree, guayacan is also used in landscape work, and several groups have been planted around the Governor's palace, just inside the harbor.

WAR-TIME USES OF THE WOODLOT

BY AUSTIN F. HAWES

EXTENSION SPECIALIST IN FORESTRY

WHAT has the farmer's woodlot to do with the war? In this time of emergency when the farmer is being appealed to for more wheat and corn; more pork and beans; more potatoes and eggs, and every acre is to be pushed for its maximum production, little attention has been given to the woodlot. That unkept portion of the farm where the cows seek shelter from the summer's heat, where the older people once played at Indians, and the younger ones are now hunting Germans, has never been considered of any serious importance in the farm or national economy.

But at this time of national emergency, when every resource is being scrutinized, and many readjustments are taking place, it is well to consider the woodlot, which in the aggregate forms such a large portion of the American farm. The Geological Survey says in a recently published bulletin:¹ "Nothing is more certain than that the country will, next winter, witness a shortage of coal perhaps more serious than in the winter just passed unless unusual efforts are made between now and next fall to prevent it." When the published statements of the foreign Commissioners, that France and Italy are in serious need of coal, are taken into account it will be realized that the fuel situation is of vital importance to our allies as well as ourselves.

The coal shortage is due largely to the tremendous growth of war industries dependent on coal, and the consequent congestion of freight. Orders have already been placed with our manufacturers which will keep them fully employed for over a year, and therefore a shortening of the war would offer no immediate solution of the fuel problem. It must be realized that there is plenty of coal in the mines, and that the difficulty comes from the inability of the railroads to move it in the winter when there is such a great demand for it. On October 1, 1916, there was a total shortage of 100,000 cars in this country, of which 25,000 were coal cars. The advice of the Geological Survey is that the

consumer should buy and store coal against the needs of next winter, and thereby personally save trouble and expense. When it is realized that every car of coal unloaded this summer for use next winter will release a car for other important and, perhaps, imperative needs at a time when the need is greatest, there will be no question of the wisdom of this call.

What has all this to do with the woodlot? Simply this: where coal is scarce, wood can be substituted to a certain extent, and should be this winter. Obviously the manufacturers cannot substitute wood; neither can city people, because this would result in even greater railroad congestion. For the same reason the farmers of Ohio and Illinois, who

can obtain coal on their own farms, might just as well continue to do so. Wherever team-hauled wood can be substituted for railroad-hauled coal this should be done, and may be considered a part of the program laid down by President Wilson. Farmers owning woodlots, and villages which can purchase wood from nearby farmers, can all help, and though it is not expected that many will substitute wood as their chief fuel, they can supplement their use of coal with wood much more than usual. In the seventeen states, including Minnesota, Iowa and Missouri and those to the east, including New England, there is a rural population of about 20,000,000 people, and it is estimated that they use annually about 18,000,000 tons of coal. If by substituting wood one-quarter of the coal burned by farmers and one-tenth of the coal burned in villages could be saved, there would be a total saving of 2,700,000 tons or 67,000 carloads. In fact, it seems reasonable to assume that by an active campaign between two and three million tons of coal can be saved, which is an appreciable factor.

Considering two cords of wood as the equivalent of one ton of coal, this substitution would call for the cutting of about five million cords of wood more than usual. The total amount of wood used in these seventeen states last year was estimated by the Forest Service at 26,571,000 cords.



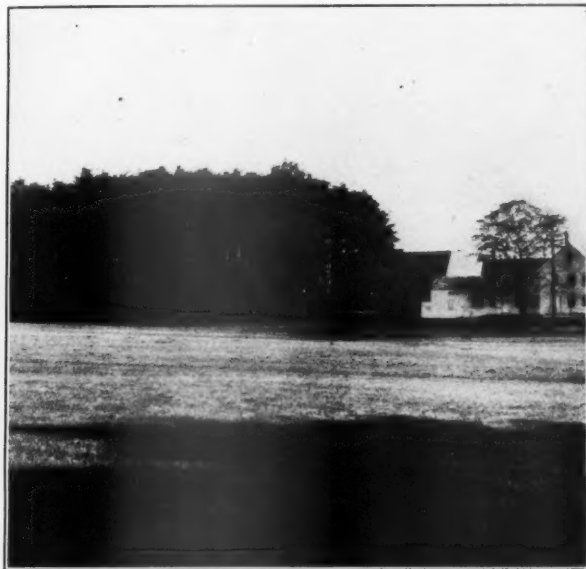
A LOT OF WOOD FROM A WOODLOT

This shows what a woodlot can be made to do in the way of reducing the high cost of fuel and making a farmer independent, to a large extent, of the coal producer and the overtaxed railroads in the present nation-wide congestion of freight. The cut timber represents a considerable supply of fuel, and the possibilities of the woodlot are by no means exhausted.

¹ U. S. Geological Survey Bulletin 666-M, by C. E. Leshner.

At the close of the harvesting season, there will be a large surplus of labor if the present campaign for farm labor is successful. Some of this can be profitably employed in wood cutting and hauling, and in this way can be kept on the farms over winter. In fact, this winter work might be an important factor in a permanent "back-to-the-farm" movement. The wood cut in the fall could be burned in the latter part of the winter, and enough could be cut in the winter to relieve the shortage in the following winter.

Undoubtedly economic pressure would of itself result in a partial substitution of wood for coal, but since the Government has thought best to stimulate the raising of food in a period of abnormal prices, it should stimulate a



FUEL F.O.B. THE FARMHOUSE

Here is a woodlot at the owner's very door. On this small area in Stafford County, New Hampshire, is a stand of pine timber that is ready to do its share toward solving the fuel problem. By cutting even a slight portion of this timber the owner will be contributing to the national supply of fuel, and he will be doing his woodlot no harm. In the aggregate such contributions will be of vast value.

form of production and saving which is less obvious. Even if the high price of fuel were in itself sufficient to bring about this increased wood cutting, it is evident that widespread, promiscuous cutting of woodlots will do more damage than good. By proper organization, this opportunity can be turned to a certain extent to the improvement of the woodlot and hence of the farm.

The plan to be followed in this fuel emergency campaign illustrates so nicely the coöperative work of the States Relations and Forest Services of the Department of Agriculture that it may be of general interest. Under the so-called "Smith-Lever" law the States Relations Service has been developing, in coöperation with the various Agricultural Colleges, a great system of agricultural education and will eventually have a county agent in every county in the country. The Forest Service for about twenty years has been offering information along forestry lines, and in many states has coöperated with the State Foresters in getting this information to the public. It is now proposed to combine all these forces in a more effective campaign. New Hampshire, which is one of the leading states in for-

estry work, may serve as an example. Through the Extension Service of the Agricultural Colleges and the various county agents an educational campaign will be started immediately after haying to convince the farmers of the desirability of cutting more wood and cutting it in a proper way. Farmers have confidence in the county agents, for they have found their advice is practical, and they are more intimately acquainted with them than they can be with the State Forester or the Professor of Forestry at the College. Both of these men, with their various assistants,



WHAT TREES ARE THESE?

This is a woodlot which combines use and beauty, to say nothing of its interest to the student of the trees. It is a stand of mixed hardwoods on a farm in Ohio. In the foreground stands a young tulip 12 inches in diameter and 75 feet high. On the other side is a beech, while near the man are two chestnuts. The younger growth is mostly beech and maple. The woodpile is of beech, for home use.

will furnish the technical information necessary to have the work conducted properly. The County Agents will select certain woodlots, well located in reference to main highways, to serve as demonstrations, and a forester will mark the trees which should be cut. Later the agents will arrange conferences of neighboring farmers in these woodlots, and the forester will explain why he marked certain trees for cutting. So far as possible the forester will visit other woodlots and give the owners instructions to guide them in their work. There is such a complete force of foresters in New Hampshire that it is believed that the whole campaign can be handled very beneficially for the woodlots and their owners. The Professor of Forestry at the College will be responsible for the direction of the work in the two or three counties near the College; and the State Forester with his several assistants will be responsible for this work in the remainder of the State. Other states should follow New Hampshire's example in this emergency.

ENLISTING SOLDIERS OF THE SOIL

IN the present national crisis the members of the American Forestry Association can make no contribution more helpful than their coöperation in the campaign to stimulate Food Production and Food Thrift. The enthusiasm with which they have entered into this work is manifested in letters received by the editor of American Forestry from members throughout the country, endorsing the efforts of the Association and the Magazine to assist and supplement the plans of the National Emergency Food Garden Commission. Mr. Charles Lathrop Pack was the originator of this commission and is its president, which facts give the Association particular pride and interest in the success with which the work is meeting. The movement is already proving of tremendous value in increasing the nation's food supply through the planting of a million or more food gardens. By thus utilizing land that has been unproductive the country is now creating a source of food supply of immense worth in this time of war emergency. The American Forestry Association is doing much by the contribution of its headquarters and organization to the work of the Commission. President Pack feels that the individual members can increase this contribution by doing whatever they can to stimulate Food Production and Food Thrift in their own communities.—THE EDITOR.

AS a clearing-house through which potential food gardeners are brought into intimate touch with expert knowledge on which they can base intelligent work for food production, the National Emergency Food Garden Commission exercises one of its most important functions.

In this way the Commission is developing a new generation of gardeners of all ages and guiding them into successful cultivation of vacant land near their homes, to the personal gain of the workers and to the needed increase of the nation's food supply. Authorities agree that the propaganda of the Commission will prove a vital factor in helping America solve one of its most serious present problems, that of supplying ourselves and our European Allies with enough to eat during the period of the war.

The raw material for this movement was at hand. The land was waiting, in the form of back yards, vacant lots and unused tracts of various sizes, in or near every city, town and village of the country. The gardeners were ready in the school children and their elders in every community. That the one thing needed was a national commission to arouse interest in the national need and to supply expert guidance has been shown by the immediate success of the work which the Commission has undertaken. The response has

astonished everybody concerned. That the results will be of vast importance is obvious.

The movement affords a rare example of Thrift wedded to Abundance. It is a case of producing for the purpose of immediate use as well as for saving for the future. The

food garden will enable families in the most moderate circumstances to enjoy the hitherto unknown luxury of vegetables fresh from the garden, and to those who have been denied this privilege the work involved will pay dividends far in excess of the money saved in the purchase of foodstuffs. Anyone interested in statistics may take as his basis the \$250,000,000 of expected output in the Emergency gardens, multiply it by the proper factor of individual satisfaction on the part of the consumers and find, to his own profit, at any rate, the aggregate worth of the dividends to be gleaned by the shareholders in this important war movement.

Thrift is the essence of the undertaking. The nation's shortage in foodstuffs is one of the most serious phases of the unprecedented situation which confronts the American people. It is no exaggeration to say that the country is today in the midst of a food panic. Efforts to place the blame for some of the trouble are interesting and impor-



A SOLDIER OF THE SOIL

Women are taking as important a place as men in War Gardening. Throughout the United States they are shouldering the rake and hoe and adding to the nation's food supply. The costume is a type of uniform being worn by the women and girls engaged in raising food for soldiers.

tant, but as a fundamental it must be recognized that the shortage actually exists. That there may have been manipulation and an exploitation of the country's needs may be determined by those in authority, but regardless of this phase of the matter the one thing clearly indicated as a

tuted, the methods of cultivation were not intensive and the money value of the product was small. Training of the children in the school work showed how this value could be increased and the Commission has data to show that the average school child of reasonable age can produce

from \$50 to \$100 worth of vegetables on a piece of ground 50 x 100 feet in size—equivalent to about an eighth of an acre. Let this be done on a considerable scale in every community and it will be readily seen to what extent this will simplify the country's food problem and its transportation problems in the bringing of food to each city or town by railroad freights.

While the school children are the nucleus of the nation's potential army of food gardeners, the work appeals to grown people with similar force. To the man or woman who works eight hours a day in store, shop or office, the making and care of a garden can be made to afford recreation that is not only healthful and financially remunerative but of distinct pleasure as well. Without expert guidance this would not be easily achieved, for gardening is a work that must be conducted along lines of exact science. With the instruction and helpfulness of the



"SOW AND YE SHALL REAP"

Mrs. J. Chester Pyles and Mrs. M. E. Rafter, troop captains of the Girl Scouts of Washington, planting the first handful of seeds on the girl scouts' one-acre farm. The seeds for the farmlet were donated by the National Emergency Food Garden Commission. If a million other American women would follow the example set by these women, the production of food in this country would be increased to such an extent that not only would food prices be much lower but we would be able to supply our Allies with all the food they need.

national duty is to produce more food and do it as quickly as nature makes possible. This is Thrift of vital worth and meaning. It will give the people more food, better food and at a distinct saving in financial outlay. It will release for other uses a vast number of freight cars that would be required to carry to market the foodstuffs which will thus be at hand without transportation, or "F. O. B. the kitchen door," as President Charles Lathrop Pack aptly phrases it. These cars will be available for the transportation of other merchandise, the tremendous movement of which helps create a deficiency in food supplies. In case of military necessity for the use of the railway facilities of the country this phase of helpfulness will be increased several fold.

The development of school gardens in various cities throughout the country has given the Commission a basis for actual figures as to what may be accomplished. About thirty per cent of the families outside of the large cities have home gardens, but, until the school garden work was insti-



DOING A MAN-SIZED JOB

Hard work is play for these girl scouts when the cultivation of their farmlet, on the D. A. R. grounds, Washington, is at stake. These young huskies work like Trojans to grow food to help feed Uncle Sam's fighting men. They are aiding the National Emergency Food Garden Commission in its campaign for a greater food production.

Commission the technical difficulties are removed and a nation of amateur gardeners immediately becomes a nation of experts.

If there is demand for Thrift in connection with the

production of foodstuffs, President Pack feels that there is no less imperative need for Thrift in the utilization of the country's supply. American kitchens waste enough food each year to feed the whole British army in France and several divisions of the French army. The estimate of this waste is \$700,000,000 annually, and this is believed to be conservative. For the elimination of this reckless extravagance it is important that the people of America

of left-over cereals with meats, fruits or vegetables. Even a spoonful of cereal is worth saving as a thickener for soup or gravy. No housekeeper should throw away stale bread, sour milk, scraps of meat or fish, trimmed fats or suet. Even the water which has been used for cooking rice and many vegetables should be saved. Stale bread can be used in many ways, sour milk can be used in baking, meat and fish scraps add flavor and nourishment to



WHAT BOYS CAN DO IN HOME GARDENING

There could be no better evidence of success of the Home Gardening campaign of the National Emergency Food Garden Commission than this picture showing a piece of ground cultivated by a Boys' Club. The young gardeners followed instructions and worked together to increase the nation's food supply. The abundant yield is an eloquent tribute to their success, and an inspiration to others, grown-ups as well as young people.

should consider themselves mobilized into an army of food-savers. This does not mean deprivation. It simply means the exercise of care.

That this care is essential is shown by the insistence of our own military leaders and those of our Allies that the outcome of the war is a matter of food. Every saving, no matter how trivial and small it may seem in itself, adds to the aggregate of the food supply that can make victory possible and certain, just as every new food garden, however small, contributes to the vast total of this new source of food. Without Food Thrift at home the struggle on the battlefields may be to no purpose. Famine may be the great victor, and it is easily conceivable that the war may end in a surrender forced by starvation.

The chief food loss in America is in the private homes. Good food is improperly handled and stored, carelessly cooked, wastefully prepared, or over-generously provided. Extravagant cooks must learn how to use left-overs. Appetizing side dishes may be prepared by the combination

made-over dishes; fat can be used as a substitute for butter and lard in cooking, and cooking water will help to flavor soups and sauces.

The economical preparation of food is an important step in the program of Thrift. Carelessness in peeling will waste 20 per cent of potatoes, turnips and apples. In the average family too much food is habitually served. Simplicity should be the keynote of war-time menus. Too many dishes mean that much food is thrown away. Saving rather than spending should be the motto of the patriotic American home.

In the raising of foodstuffs in emergency gardens the community spirit is an important factor. Efforts of any kind are more successful where the individual feels that his neighbor is working with him. Many persons who have had little or no experience in gardening, but who are ready to learn and to work, are attracted by the idea of community gardens. So many inquiries have come to the National Emergency Food Garden Commission as to the practical

working of such enterprises that a special bulletin of advice has been issued on the subject. This bulletin says in part:

"The advantages of community gardening are several. Considerable back-breaking labor can be saved by hiring the plowing and harrowing of the garden tract. The pro-rata expense for this work will be light and well worth paying to escape the toil of spading by hand. Moreover, in the cultivation of an extended garden tract it is possible to use other labor-saving tools, like the wheel hoe, which are not practical in small back-yard gardens.

"Money also can be saved by the individual members, comparing the cost of community gardens with that of the same tract if tilled in individual plots, in the purchase of garden tools—hoes, rakes, wheelbarrows, sprinkling cans, and the like—because several workers in the garden at different times can use the same tools. In the same way money can be saved in purchasing fertilizer, seeds, and spraying chemicals for insects and plant diseases, and a further advantage is that the community garden is likely to have the benefits of artificial fertilization and spraying which are often dispensed with by the individual who cultivates a small garden.

"The greatest advantage of all which can come to the

A WAR-TIME MOTTO

"PRACTICE Economy, but not Parsimony; cut out Waste—particularly all Food-Waste—but maintain the American standard of Comfort. That is good economics and good business."—CHARLES LATHROP PACK.

workers in a community garden is the possibility of their obtaining expert instruction. For a small cost some expert gardener—perhaps a market gardener on the outskirts of the city—can be hired to visit the community garden at intervals and

tell the novice workers about their mistakes. Once a week would be often enough for such practical instruction. Such first-hand advice for a new gardener often means the difference between a heavy crop and a complete crop failure.

"In general those who engage in such an enterprise should be as far as possible persons of the same interests and tastes, and also of about the same habits in life. Their leisure time should be about the same. Shunt off the chronic kickers, and those who are constitutionally convinced that others are always trying to get the best of them. Every one who goes into such an arrangement should understand exactly what the coöperation proposes to do. It ought all to be down in black and white before anything is started or any money spent. While each member is enlisting to share in the produce, he is also pledging his pro-rata amount of labor. The points of trouble in any community garden undertaking are likely to come in these two places.

"It is important that the volunteer manager be a man



ONE YOUNG CANNER'S VERSATILITY

This "Girl from Utah" has established a reputation that may well bestir the envy of the experienced housewife. With a view to doing her bit in the matter of Food Thrift, she started at the top of the vegetable and fruit list and worked through it. The result is here pictured. In each of the five rows may be counted eleven jars. No two of them are duplicates as to contents. This means that the young lady canned fifty-five varieties of vegetables and fruits in a single season. What will she do when she is twice as old?

in whom all the members have confidence as to his fairness and ability. Once he is selected, he should be given rather a free rein in the management."

With local organizations thus perfected the Emergency Food Garden movement has been making rapid headway throughout the nation. The readiness of communities to organize for the production of food has been remarkable, and the Commission finds itself flooded with requests for information and coöperation, all of which are given prompt and cordial attention. For the instruction and guidance of these organizations and individual gardeners the Commission is furnishing daily planting lessons to newspapers all over America. Nearly 2000 newspapers throughout the country are now using these lessons, which are supervised by agricultural experts. They tell what, when and how to plant and how to insure a full crop. Due regard is given to climatic conditions in various sections of the country, and these lessons have been instrumental in bringing about the creation of thousands and thousands of flourishing gardens all over the land.

Not the least important phase of the individual's duty in connection with the food supply of the nation is in the matter of canning, the season for which is now here. Too much emphasis, says President Pack, cannot be placed on the necessity for preserving fruits and vegetables during the season of their abundance for use when winter shall have arrived. This



CANNING BY COMMUNITIES

A high measure of efficiency in canning is reached by application of the Community Spirit. Inasmuch as canning is one of the fundamentals of Food Thrift, Community Canning should be encouraged. It reduces cost and labor and induces food conservation on a larger scale than individual effort.

work wherever possible, the Association is urging the establishment of canning centers in each suffrage league throughout the states or in coöperation with other women's societies in communities. Farm and garden clubs of local

is real conservation of food. The importance of it is accentuated by the success of the Emergency Food Garden movement. The planting and cultivation of a million food gardens will make it possible for families not heretofore canners of food to become such on generous scale. By doing this they will contribute vastly, in the aggregate, to the available supply of food for the winter season.

Economists are giving a great deal of attention to this point. As a part of a campaign for enlisting women in gardening, farming and Food Thrift, the National American Woman Suffrage Association has inaugurated a comprehensive program for this important work. In addition to its bureau of farm occupations and its plan of pledging women as individuals to do farm and garden

leagues are being urged to plan at once to open canning centers with the ripening of the asparagus, spinach and rhubarb crops and to follow this up throughout the season. Provision for a supply of cans is characterized as of first importance, as a shortage exists and prices are rising. A volunteer or paid expert for supervision and instruction is deemed essential, to the end that the greatest degree of efficiency may be attained.

A number of the most prominent women on Long



FAIR CANNERS AT THE FAIR

Canning operations may be made as interesting as an afternoon tea. In this picture is conveyed a suggestion of the allurements of community work in preparing vegetables and fruits for winter use. These charming housewives—or future housewives—are club members who are busily engaged in the conduct of a demonstration in canning at a county fair. Incidentally the picture is a good matrimonial recommendation—which is quite another story.

Island have organized the Long Island Food Reserve Battalion to interest the women of that section in organizing clubs for canning, preserving and storing surplus vegetables and other food supplies. The scale on which the work is being conducted is shown by the action of the Long Island Railroad in sending a special instruction train over its lines for a week during the latter part of May. The train ran on a schedule announced in advance, allowing stops of an hour each at stations throughout Long Island. At each stop lectures were given by Mrs. H. B. Fullerton, Mrs. A. Louise Andrea and other experts, and an opportunity given

to inspect the exhibits, which included complete outfits of canning implements, jars and crocks. Reports indicate that the train was instrumental in arousing intense interest and enthusiasm among Long Island women.

In no field has there been greater progress than in the home canning of fruits and vegetables. The old-fashioned method of canning, used a generation ago, involved cooking foodstuffs in an open kettle

this loss. The foodstuffs are placed in cans and sealed before being subjected to heat. The cans are then placed in boiling water or in live steam and kept there until the heat has destroyed all germ life within holders or contents. This may or may not cook the contents of the cans. Whether it cooks them or not does not matter. Partially cooked fruits or vegetables prepared by this process will keep as well as those thoroughly cooked.

This method saves time, labor and expense. The foods are placed in the cans when cold and can therefore be handled quickly and easily. The sterilization period is frequently short, and with this saving of time is combined the economy made possible by dispensing with thick syrups and preservative spices. Fruits can be preserved in thin syrup, and vegetables require only water and salt as a flavoring solution. A distinct advantage is the ease with which the



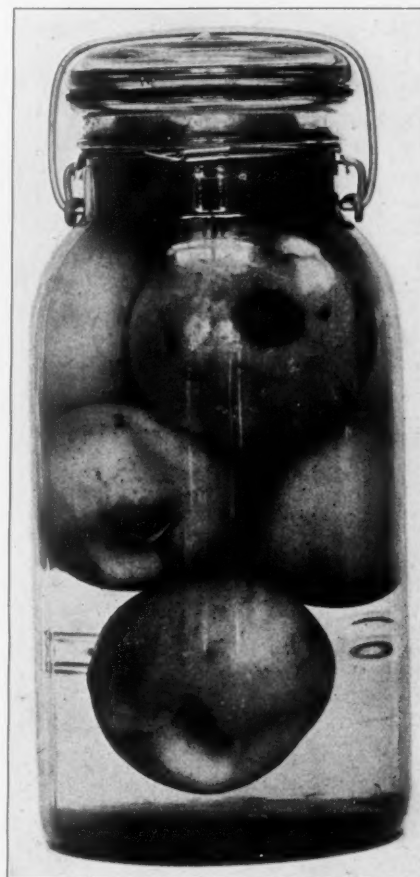
READY FOR THE SHELF

This cauliflower has been through the routine by which it is prepared for the winter. Notice the firmness of the product and the perfect retention of form made possible by the cold pack method of canning vegetables and fruits.

over a hot fire and then putting them into sealed cans. This was laborious and expensive, and it was actually cheaper to buy canned goods from the grocer than to put them up at home.

The modern method is by means of sterilization. Science has proved that the decay of food is caused by yeast ferment and other forms of bacteria and germ life. Fruits and vegetables cooked in the old open kettle were of course sterilized by the hours of boiling. Too frequently, though, the food products thus prepared would not keep, for the reason that they were placed in cans which had not been sterilized. The loss thus brought about was no inconsiderable item.

Sterilization, under the modern process, does away with



APPLES CANNED WHOLE

If all housewives realized what may be done with apples there would be none of the prodigious waste of this fruit that takes place every year. Why let apples decay in the orchards when they may be canned like this, during the season of abundance, and saved for the lean months of winter?

the process can be applied, making it practicable to put up small quantities to as good advantage as larger quantities. The thrifty housewife can thus preserve a single can of surplus foodstuff. This makes possible true household efficiency, as it enables her to save for the winter any small surplus of a garden crop, or an excess left over from her grocer's order. Recognizing the importance of food-canning, the National Emergency Food Garden Commission has issued a special bulletin of instructions which will make it possible for every housewife to preserve food products of the highest standard at slight cost of money, time and labor. Copies of this bulletin may be had without cost on application to the office of the Commission at 1410 H street, N. W., Washington, D. C.

FLOWERS THAT BLOOM IN JUNE

BY DR. R. W. SHUFELDT, C. M. Z. S.

ALL through the northeastern section of the United States, the month of June marks the long-looked-for season by the student of wild flowers, when field and forest, marsh and meadow are actually aglow with hundreds of different flowers that were not in evidence earlier in the year. One meets with them upon every hand, just so soon as one passes beyond the environs of the city; or, if one lives in the country, almost before there is a chance to



THE FLOWER OF OUR HILLSIDES AND ROCKY CRAGS

FIG. 1.—This is a fine specimen of the Wild Columbine (*Aquilegia canadensis*) which belongs to the Crowfoot family along with such plants as Larkspur, Hellebore, Buttercups, and many others (*Ranunculaceae*). There are several species and varieties of the Wild Columbine, as well as a Garden Columbine (*A. vulgaris*), in which the flowers are blue, purple, pink, or even pure white. This wild one, however, has scarlet flowers that are yellow inside; it nods upon its slender stem, which causes its hollow spurs to point upwards; though when the flower drops off the fruit points the same way. The Columbine is a perennial, having 2-3-ternately compound leaves with lobed leaflets. The five hollow spurs are backward projections of the petals, which latter are all alike. The five regular sepals have the same color. Pistils likewise are five, with slender styles. The erect pods contain many small seeds. Range: general; blooming from the latter part of April to the middle of June.



BLACK-EYED SUSAN, A FAVORITE FLOWER OF EARLY SUMMER

FIG. 2.—Nearly every one who goes afield is so well acquainted with this conspicuous "Yellow Daisy" that it hardly requires a description. It is the *Rudbeckia hirta* of the botanists, and belongs among the *Compositae* or great Composite family. It also bears the name of Cone-flower and Nigger-head—the latter being particularly inappropriate from any viewpoint. There is no trouble in finding it on its range anywhere, during the months of June to September, for it grows in the dry soil of meadows, brakes, and roadsides, from western New York to Manitoba and southward. Originally it came from the West mixed with clover seed. In various localities it presents certain variations in its flowers and leaves, and it may be either an annual or a biennial. There is a pair of Aphrodite butterflies (*Argynnis aphrodite*) on the upper flowers, a very beautiful and abundant species of the eastern part of the United States; it is a near relative of *A. cybele*.

pass out of the front gate. Their name is legion; and, to mention some of them here, with a view of giving an idea of their abundance, colors, or marvelous beauty, is to do a rank injustice to the host of others left off the list. Only a few can be considered at a time, with the hope of continually making records of others as the months pass.

First, we may choose the Columbine (Figure 1). That superb plant, with its beautiful flowers, is known to nearly every one that at all frequents the open; moreover, its unique structure and form is no stranger in many country or even city gardens, where we meet with the Garden Columbine, a species with hooked spurs, originally introduced from Europe. In northern New York the Wild Columbine is sometimes seen to grow most luxuriantly out on hilly meadows; but this is by no means the case elsewhere, for it is, perhaps, above all other flowers, the one that adorns our hillsides, where masses of loose stones occur, or, even

more frequently, wherever patches of soil are to be found among the granite cliffs and on the sides of rocky ravines. There its lovely red and yellow flowers bob away in the breeze, often in such inaccessible nooks as to be quite beyond the reach of the ordinary climber. Many a venturesome swain has had his tumble, in his endeavor to gratify the wish of his sweetheart—standing far below him—for a bunch to take home for a vase on her mantel.

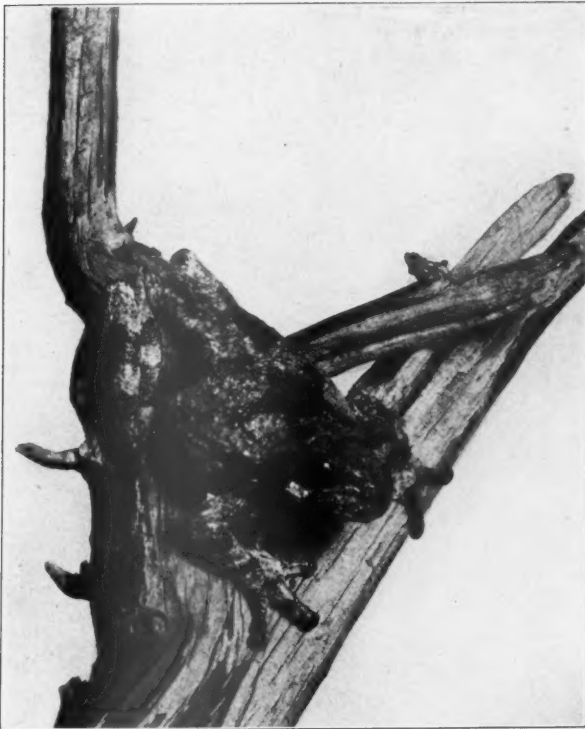
Mrs. William Starr Dana has written very feelingly about this. She says of the Columbine that "it contrives to secure a foothold in the most precipitous and uncertain of nooks, its jewel-like flowers gleaming from their lofty perches with a graceful *insouciance*, which awakens our sportsmanlike instincts, and fires us with the ambition to equal it in daring and make its loveliness our own. Perhaps it is as well if our greediness be foiled and we get a tumble for our pains, for no flower loses more with its surroundings than the Columbine. Indeed, these destructive tendencies, which are

strong within most of us, generally defeat themselves by decreasing our pleasure in a blossom the moment we have ruthlessly and without purpose snatched it from



NEW JERSEY TEA, A CONSPICUOUS FLOWER OF THE WOODLANDS

FIG. 4.—This tall, shrubby plant, with its pretty clusters of white flowers, received its name, *New Jersey Tea*, from the fact that, during the War of the American Revolution, its leaves were quite extensively used to take the place of tea leaves for the making of tea; it belongs to the Small Buckthorn family (*Rhamnaceae*). It also occurs on gravelly shores, ranging from central Maine to western Ontario and southward. In the neighborhood of Washington, D. C., it is quite abundant in open and dry woods, and early in July is abundantly visited by a black beetle of no great size, three specimens of which are shown in the picture. *New Jersey Tea* is the *Crataegus americana* of the botanists, and there appears to be but one other species of it described for our flora, *C. ovalis*, which is of rare occurrence in the eastern districts.



THE COMMON TREE FROG, A WELL-KNOWN DENIZEN OF THE FORESTS IN JUNE

FIG. 3.—Le Conte named this remarkable little imp of the woods *Hyla versicolor* for very excellent reasons; and Mary C. Dickerson, in her splendid volume "The Frog Book," says of it, on page 117: "Probably more familiar than any other member of the batrachian group, if we except the common toad, is this entertaining little acrobat of the frog world. Some June morning, when we are admiring the blue flowers of the clematis that climbs the porch, we see what looks like a yellowish white oval of putty plastered against the white pillar shaded by the vine. It is our Common Tree Frog (or Tree Toad, as it is called) sound asleep." This author gives no fewer than 18 colored and plain figures of this species from life in her book, as well as a beautiful plate of a piece of woods or forest where they are to be found; its history is an extremely interesting one.

its environment. If we honestly wish to study its structure, or to bring into our homes for preservation a bit of the woods' loveliness, its interest and beauty are sure to repay us. But how many pluck every striking flower they see, only to toss it carelessly aside when they reach their destination, if they have not already dropped it by the way!"

There is great variance of opinion as to how the Columbine got its vernacular and scientific names. The dove, the eagle, and other forms enter into the discussion, but the story is too long to print here.

Fertilization is performed principally by a number of species of bees, though the humming birds play no mean part in this rôle. The honey is held in the five backward-extending spurs which are called the nectaries, and the five sepals are red like the petals.

But on this long and sultry day toward the very last week in June, let us pass out of the cool ravine where the Columbines grow, into the blazing sun, as it mercilessly heats the air, and the fields, and everything growing in them for acres around. Near at hand is a sluggish, muddy stream, with a great mass of bramble skirting a part of its bank. But all this, and all this scorching temperature, is precisely what the flower about to be noticed fully enjoys. This is the Black-eyed Susan, and there are hundreds of these gorgeous, orange fellows in sight, standing up boldly against the heat everywhere. It would make a salamander

blush to think of it; and every year that passes, this royal representative of the *Compositæ* seems to be more and more abundant in that same locality. There is a reason for this,



THE CURIOUS LEATHER-FLOWER OF THE RICH LOWLANDS OF THE SOUTH

FIG. 5.—Here is another representative of the Crowfoot family (*Ranunculaceæ*) which has been called the Leather-flower (*Clematis viorna*) on account of the thick, leathery sepals, four of which, with their recurved tips, are joined at their margins as shown in the cut. F. Schuyler Mathews, in his useful "Field Book of American Wild Flowers," says, on page 130, that it is "a southern species with solitary, thick, leathery, bell-shaped, dull purple flowers without petals, the purple sepals about one inch long. The three or more leaflets with unbroken edges or lobed. In early autumn the hoary plume is brownish. Southern Pennsylvania, south to Georgia and Tennessee and west to Ohio." The specimen here shown is a Maryland one, collected on the Georgetown Canal, and the vine was growing in rich, marshy soil, amid a mass of other vegetation.

just as was found to be the case with respect to the White Daisies in last month's AMERICAN FORESTRY: they are rich in pollen, and the bees, butterflies, and beetles do the rest. Neltje Blanchan truly says: "Anyone who has

had a jar of these yellow daisies standing on a polished table indoors, and tried to keep its surface free from a ring of golden dust around the flowers, knows how abundant their pollen is."

The New Jersey Tea, here shown in Figure 4, is also called Wild Snowball, as well as Red Root, from the deep reddish tint of that part of the plant. A tan-colored dye



A PRETTY MIDSUMMER DAISY

FIG. 6.—This is the Common Daisy Fleabane (*Erigeron ramosus*) of the *Compositæ* and it belongs in a genus in which occur some ten or more species, with as many varieties; so it is not always an easy task to distinguish them. Indeed, common as this plant is from June to October, east of the Mississippi, in fields and along roadsides, it has been incorrectly identified by not a few authors on flowers. Note that the stem is slightly hairy, and that it is pannicled—corymbose at the summit; that the lanceolate leaves are entire or occasionally once-notched, and scattered. Flowers white, sometimes tinged with lilac. This is the *Erigeron strigosus* of Muhlenberg and of Mathews. The central disks are bright yellow, and constitute the true flowers; the white rays correspond to all daisy rays. Robin's Plantain, Sweet Scabious, and Horse-weed or Butter-weed all belong in this genus, and are close relatives of the Asters.

is made from these roots which possesses some economic importance. As one passes through the silent woods in June, a group of these conspicuous, shrubby plants appears to stand out boldly and apart from the surrounding vegetation, and the sight is by no means an unattractive one.

There is hardly any danger of mistaking the curious Leather-flower (Figure 5), nor the long, straggling vine upon which it is found, for any other flower, although some botanists touch upon the possibility of this in their works.

However, such slips are occasionally made, and it will be as well to correct one here, which appeared in the last issue of *AMERICAN FORESTRY*, when *Plantago lanceolata* was incorrectly described and figured as *Plantago major*; the first-named is the English plantain, Rib Grass or Ripple Grass, whereas the latter is the Common plantain.

There would seem to be no doubt but that the beautiful little white daisy shown in Figure 6 is the Common Daisy Fleabane, or Sweet Scabious of some writers, though this flower is often confused with the Daisy Fleabane. In

the last edition of Gray's *Manual*, we find the Daisy Fleabane or Sweet Scabious called *Erigeron annuus*, and the Daisy Fleabane, *E. ramosus*, the very next species to it; Mathews seems to confuse the two. In any event, the *White* Daisy Fleabane is one of our most abundant plants, and in some sections it may be found along the roadsides everywhere. These plants got their curious name from the fact that some people believe that when burned some insects would shun them; and so we often see bunches of them so treated hanging in country cottages.

FOREST FLOWERS

BY BESSIE L. PUTNAM

WE are apt to look for our flowers in a class quite apart from trees, and to value the latter, from the æsthetic point of view, merely for their verdure and shade. And yet some of them are quite as much entitled to floral recognition as some of the garden flowers grown merely as flowers.

Almost before the pussy willows have burst their furry

catkins, the flower clusters of the red maple have burst their buds, accentuating the brightness of color which the twigs have been for weeks gathering, and which, to the close observer, render the tree little less interesting in spring than after the bright autumn colors are donned. Less showy but far more graceful are the greenish blossoms of the sugar or hard maple, which appear a little later than



Photo by American Museum of Natural History

THE WILD CRAB

Blossoms most beautiful and fragrant, and in May time, when the flowers are at their best, attracting the bees and other winged creatures by the hundreds.



Photo by American Museum of Natural History

THE DOGWOOD

The showy flowers of the dogwood—the banner of spring. One of the most conspicuous of all the flowering trees, making the hillsides in May truly beautiful.



FLOWER OF THE TULIP OR
YELLOW POPLAR

The flowers of the yellow poplar closely resemble tulips in form and size and even in coloring. Of a pale green—almost cream—with markings of orange, they are very beautiful.

the leaves, and which, with their long, slender pedicels, envelop the tree in a fairy-like fringe which sways with the gentlest breeze.

In May the hillsides glow with the glistening white of the dogwood, perhaps the most showy of all our forest blossoms. And yet the flowers are not white after all, but are a greenish yellow, clustered in groups of twenty or more, each surrounded by the four-leaved involucre which is known in common parlance as the flower. These floral envelopes vary much in size and purity of color, this depending partly upon the individual tree, and partly upon the season; and it is a common saying among farmers that when the dogwood blossoms are small the fruit crop will be correspondingly small; in other words, Jack Frost is quite as partial to nipping the dogwood as the apple blossoms. When the dogwood is in bloom, as well as "when the oak leaves are as large as squirrel's ears," is the accepted time for planting corn.

About the same time the pink buds of the wild crab are burst-



FLOWER OF THE SUGAR MAPLE

The graceful blossoms of the hard maple, coming just after the leaves and which with their long, slender pedicels envelop the tree in a fairy-like fringe, swaying with every breeze.

ing, filling the air with a fragrance which calls bees and other winged creatures by the hundreds. Talk about the beauty of apple blossoms; they are not to be compared with those of the wild crab! The Japanese may revel among their cherry blossoms, but with *Pyrus coronaria*, which is usually at its best in middle latitudes at Decoration time, we may well be satisfied.

Most interesting are the flowers of the tulip tree, *Liriodendron tulipifera*, resembling the tulip in form and size, and quite as strangely marked as some of the parrot tulips, with their blending of pale green with orange crescents. In autumn the winged seed-pods expand, almost like glistening straw-colored flowers. Scarcely less interesting are the leaves, each abruptly notched at the end into a shape so distinctively its own that there is no possibility of mistaking the foliage of the tulip or whitewood for that of any other tree. In geological times there were several species, but now we have but a lone species, now largely grown in many parts of Europe as a shade tree,



A SPRAY OF BASSWOOD (LINDEN) BLOSSOMS

These creamy flowers are prime favorites of the bees, which fact alone should commend the planting and care of the trees for their commercial value as honey getters.



THE CHESTNUT

This photograph speaks for itself—it is unnecessary to enlarge on the beauty and grace of the flower of the chestnut—a feathery, creamy mass of bloom in late June or July.

and well deserving a place among our own ornamental trees of park and lawn. In its forest home it grows to a height of more than a hundred feet, but when planted in the open it is more compact in form, and as symmetrical with its low growing branches and lower stature as when its limbless trunk stretches up among the forest trees.

The cucumber tree, *Magnolia acuminata*, is a handsome tree with large flowers resembling in shape those of the famed magnolia of the South, though smaller and sadly lacking in their greenish color the waxy beauty of their subtropical cousins. The fruit, which resembles a small cucumber, eventually splits open at every seed, allowing the bright scarlet seeds to be suspended by their slender, thread-like attachment for some days before they finally become detached.

The basswood, with clusters of creamy blossoms, each bearing a curious leafy bract, furnishes an abundance of most excellent bee pasturage. This feature alone should insure to the tree liberal planting. Valuable for its wood, it pays its way after the very first years in the abundance of amber honey which it produces.

In our own opinion, there are few more attractive trees when in bloom than the chestnut, now surely doomed unless its persistent enemy can be routed. Though the beautiful trees near New York have all been sacrificed and the chestnut tree blight is surely passing westward, there are still many beautiful specimens, laden in July with a feathery

mass of creamy catkins. True, the pistillate flowers are rarely noticed by the uninitiated, but it does not require a botanist's eye to appreciate the showy staminate tassels.

The last of all trees or of all flowering plants to bloom is the witch hazel, in some localities scarcely attaining to more than shrub-like dimensions. When

its neighboring trees are casting their autumn leaves, this strange species expands its small, strap-shaped honey yellow blossoms, the fruit of which does not mature until the following mid-summer. The plant has a highly specialized method of seed sowing, as unique as are its flowering plans. When ripe and dry the capsules burst elastically, propelling the seeds, according to William Hamilton Gibson, forty-five feet by actual measurement. If one wishes to test these sharpshooters, a simple method is to gather some of the branches in mid-



FLOWERS OF THE CUCUMBER TREE (*MAGNOLIA ACUMINATA*)

This is a handsome tree with large flowers not unlike those of the famous Southern magnolia, though they are greenish in color and lack the waxy beauty of the true magnolia.

summer, when the fruit has nearly reached maturity, and place them in the living-room. As the pods become dry the capsules split and the bony seeds are thrown quite across the room.

And yet this seeming anomaly in reversing nature's rules for flowering is only anticipating its companions in the process, for while the other trees simply perfect their flowering buds for the coming season, this joker expands them. That is all the difference! And so between the pussy willow and the witch hazel there is an almost constant procession of forest flowers, each worthy of our attention.

IF the 25,000,000 trees planted in the Pennsylvania state forests were set four feet apart, as they actually are in the woods, and planted in a straight line, they would cover almost 19,000 miles. Planted twenty feet apart, they would provide shade trees on both sides of 40,000 miles of highway.

STATE Forests with a total of over 3,600,000 acres have been established in thirteen states. Of these New York has the largest forests, which comprise 1,826,000 acres; Pennsylvania is second with 1,008,000 acres, and Wisconsin third with 400,000 acres.

A SINGLE issue of a New York Sunday paper is said to consume the timber from fifteen acres of forest. If Pennsylvania's state forests were fully stocked, they could furnish enough pulpwood to keep forty Sunday papers going indefinitely.

THE latest advice is not to char the ends of fence posts before setting them in the ground. The charcoal is said to hold water and thereby hasten rotting of the post.

ABSORBENT cotton, vests, hose, and handkerchiefs are now being made from wood in Germany.

"WITCH'S BROOM" ON JAPANESE CHERRIES

BY C. W. H. DOUGLASS

WITCH'S Broom," a peculiar form of tree growth which is caused by the attacks of a parasitic fungus, has been recently discovered on Japanese cherry trees presented to the United States by the Japanese Government during President Taft's administration. These trees were imported in a shipment containing many varieties of Japanese flowering shrubs which are used for ornamental purposes in Japan and were considered suitable to our climate, and were set out in Potomac Park, part of the beautiful park system of Washington, D. C. Despite the facts that a previous shipment was destroyed because of possible danger of introduction of diseases and insect pests and that this second one was carefully examined both before leaving Japan and after arriving here, the disease came in undetected. What the result will be no one can tell. It may spread to our native cherry trees and do an enormous amount of damage and it may do little or no harm.

Importation of trees and plants is often fraught with great danger. A plant that may not be harmful in its na-

tive haunts may become a danger in new surroundings; a disease that may have lived for centuries on plants without attracting attention because of the mildness of its activities on the native hosts, may run like wildfire and do great damage if allowed to spread and attack a new host. In both cases the reason for the sudden activity is that the forces which nature developed to prevent the dominance of any one individual at the expense of others are lacking in the new surroundings.

It is recognized that plants gradually develop a resistance to disease which may amount almost to immunity. Thus down through the years the disease may be attacking and the plant defending, with the result a deadlock. But allow the disease to spread to another species of the plant, one that has never been attacked and has therefore had no occasion to develop resistance, and the results are likely to be very destructive. Two widely-known examples can be found in the chestnut and white pine forests of the Eastern United States. Dead chestnuts and pines bear mute testi-



GOVERNMENT CHERRY TREE DISEASED

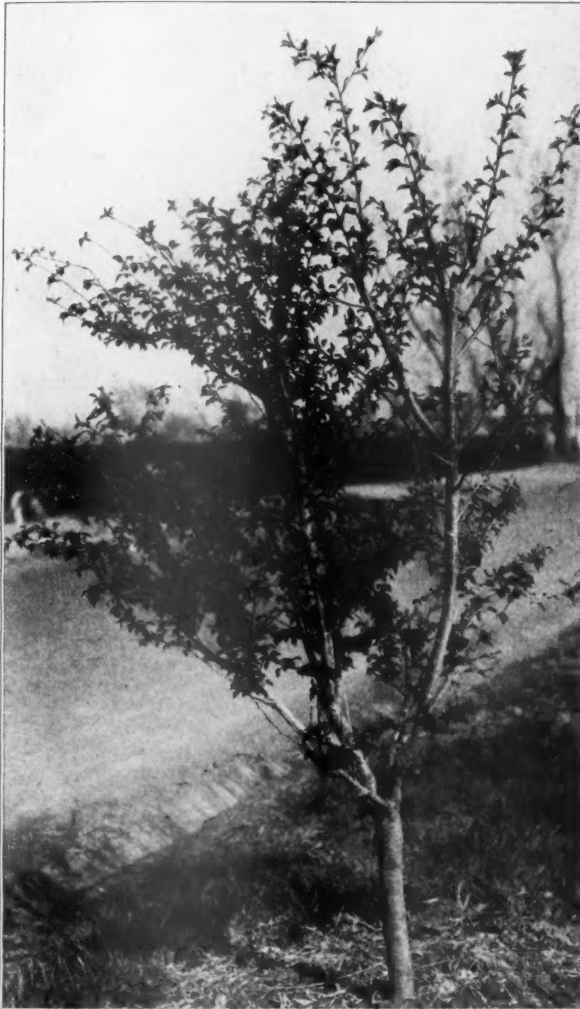
On the left is a Japanese flowering cherry tree, one of those presented to President Taft by the Japanese Government and planted in Potomac Park, Washington, D. C. This tree was removed as soon as it was found to be diseased. Out of a shipment of several thousand cherry trees about twenty were subsequently found to be infected with a parasitic fungus which caused a short, dense growth generally known as "witch's broom." This particular tree was probably attacked while a small seedling, as it is entirely "broomed." The normal tree on the right shows the contrast.

mony to the destructive power of the chestnut blight and the white pine blister, both diseases imported from abroad on nursery stock from which they spread to our native species.

In like fashion many other diseases of trees and shrubs, as well as dangerous insects and diseases of animals and human beings, have been transplanted from one part of the world to another with enormous losses resulting from their unbridled, destructive activities. "An ounce of prevention is worth a pound of cure," and it is with that idea in mind, rather than any definite knowledge of grave danger, that

try wherever the climate is favorable to their growth and development. This wide distribution gives the problem a serious aspect, for the eradication of the disease is thus made very difficult.

Following the discovery of the disease on the Japanese trees in the District of Columbia, specimens of European cherry in other places were also found to be affected similarly, but whether the disease is the same has not been determined. Although the life history of the disease has not been worked out, some general information regarding it is available. Investigation has shown that the infection



EFFECT OF "WITCH'S BROOM" ON JAPANESE CHERRY

This is another of the trees presented to President Taft by the Japanese Government. In this case the right-hand branch is free from infection, while the left one has several brooms on it. After a branch is attacked it will continue to grow, but will rarely, if ever, develop either flowers or fruit.

a warning is issued against imported ornamental cherry trees which may be infected by the recently discovered or a similar disease.

The flowering cherry trees of Japan have attained worldwide fame because of their beauty and decorative value and have naturally been imported into this country in considerable numbers for ornamental purposes. Owners of many large estates have purchased them for this purpose and they can be found here and there throughout the coun-



INFECTED LEAVES OF JAPANESE CHERRY

This close-up view of an infected tree shows how the spore-bearing bodies on the under side of the leaves cause them to crinkle. These spores ripen just after the blossoms are out and are blown from one tree to another when the leaves are small and tender. Normal leaves can be seen among the crinkled ones, and this comparison is the best way to ascertain whether or not leaves are infected, as the spore-bearing bodies are apparent only as a faint white bloom almost invisible to any but the practiced eye.

is caused by a parasitic fungus—one that lives on the tree, drawing its nourishment from the living tissues but at the same time allowing the tree to live. The life activity of the tree is so changed by the parasite, however, that while producing for a time an extra dense foliage growth, it does not produce flowers or fruit, as all the flower buds become leaf buds. The dense aborted growth is the result of the tree's response to the stimulus of the attacking disease.

The illustrations show the characteristic appearance of infected trees. In the first a normal tree is shown at the right in order to bring out the contrast with the diseased specimen. The diseased tree shown was evidently infected

in the nursery before it left Japan as every branch is diseased, making a "Witch's Broom" of the whole tree. The fungus grew as the tree grew, sending its thread-like bodies through the living tissues of the tree and stimulating the peculiar form of growth. Both the density and the shortness of the infected tree are clearly shown in this illustration. The second view shows a tree that was evidently attacked after it had attained considerable size. The main branch on the right is free from infection, as is shown by the normal growth, but the broomy growths occurring in several places on the left branch each show the presence of an infection. It is probable that this tree was infected through the leaves.

In the third illustration are shown the infected leaves. The fungus develops the spore-bearing bodies on the under side of the leaves, causing them to curve downward around the edges to give the spores the advantage of a sheltered place to grow and ripen. The crinkled effect identifies these leaves, which are quite easily distinguishable from the normal leaves around them. It is quite difficult to detect the spore-bearing body on the under side of the leaf even by close examination, as it is very inconspicuous. A faint white bloom is the only visible sign of its presence. After the spores have ripened and have been released into the air, to be carried about by the wind, the leaves on which they developed blacken and die. This will ordinarily happen a few weeks after the leaves first appear.

In spreading from tree to tree it is probable that the leaf is first attacked. The infected tree develops the spores on the leaves and releases them about one week after the tree blossoms, so that they are free to attack other trees when the leaves are only about half-grown and are still tender and easily penetrable by the thread-like growths of the fungus.

It is not known whether any of our native cherries have yet been attacked by this foreign parasite. But they may

be eventually, and the fact that they have had no opportunity to develop resistance might mean a serious spread of the disease if it once gains a foothold. The disease would have an immediate effect on trees used for fruit production, inasmuch as the diseased parts of a tree produce no fruit. The effect on the lumber-producing cherry trees would be felt only in the far future. It would be impossible to use for lumber a tree that was made up of thick, broomy branches. In fact, it is very doubtful if a tree attacked early would ever reach merchantable size. The money value of the fruit and lumber-producing cherries makes care in preventing the spread of such a disease very much worth while.

Since blossoming time has passed and this year's crop of spores has long since ripened and started on the hunt for prey, there is little possibility for action that will accomplish immediate results in preventing the spread of the disease. All cherries should be carefully examined, however, for evidence of infection. If trees or parts of trees bear few or no blossoms, have a dense, broomy growth, show curled leaves which blacken at the edge and fall early, the assumption is that they are diseased. They should be removed as soon as detected, in order to prevent any possible spread.

Although several species of Japanese cherry are commonly infected, the Yoshiro variety (*Prunus serrulata*, but more commonly called *Prunus Yedoensis*) was the most commonly attacked in the Washington Park and it is therefore especially to be suspected. The Asagi or green-flowered variety will also bear watching.

In addition to this "Witch's Broom," these same Japanese cherry trees are affected by the injurious Asiatic twig borer described in a recent number of AMERICAN FORESTRY. That two such destructive pests could enter the United States on a shipment as carefully watched as this second one was, is conclusive evidence that importation of living plants from abroad, even if inspection shows them apparently clean, is unsafe.

FORESTERS IN WAR WORK

THE following interesting letter has been received from one of the foresters with the Forestry Battalion, Canadian Expeditionary Force, stationed in England:

"We are now getting so close to the end of our timber at Windsor Park that I have been kept pretty busy looking over new areas. It is easy to find timber but difficult to find areas suitable for an operation like ours. Most of the timber I saw was small Scots pine averaging about fifteen thousand feet B. M. per acre. My last trip was to Whitley Camp. I am glad to say that we have given over our old system of leaving slash. Our men now burn as they cut. At the same time pit props (mine timbers) are cut and the fuel wood is piled. We find that this system takes but little time and has obvious advantages."

From a forester in France: "Over here in France our world is centred of course on the Western front and I have not heard very much of the doings in the forestry world in Canada. Occasionally I meet the local French National Forest officials and I can assure you that we have many interesting professional talks together. Our present log-

ging operation, of which I am in charge, is on a French National Forest of mixed hardwood and softwood. It reminds me very much of the lectures given by our Dean. The forest authorities exercise full control over the private holdings such as we are cutting upon. For instance, we must clean the surface entirely of all wood and debris, not leaving even a twig. Luckily the local French peasants are about and they eagerly take all the refuse. This is appreciated when I tell you that this winter was a very severe one in France and coal was very dear and high, \$50.00 per ton. Interesting details of our operation I will reserve for your interest when I return to Canada. It is impossible to put them on paper."

The Forestry Battalion being recruited by Major Lyons has sent over a company and another will be ready in a few weeks.

BALSA wood, found in Central America, is said to be the lightest known wood. It is lighter than cork and has an average specific gravity of only 0.104.

THE FLORIDA MAGNOLIA TREE

BY JENNIE LYNNE KYLE

THE Magnolia is one of the typical trees of Florida. In no state in the Union does it attain such magnitude of growth and beauty. It inhabits the low, rich lands along the rivers and swamps, but many fine specimens are found at varying distances from the river line.

Its form is majestic and stately. While the great Live Oaks and Water Oaks may be called the Kings of the Florida forests, the Magnolia tree towers to as great heights, and its wide-spreading branches are almost as powerful as those of the great oaks. Its downward spreading branches tend to give it an oval shape and when given space in which all sides are exposed to the sun and air, its symmetry of form gives it rank as the most beautiful of Southern trees.

The Magnolia tree of Florida grows to a height of one hundred to one hundred and twenty-five feet, the largest known measuring eighteen feet in circumference at the base. The diameter is usually uniform up to one-half the height of the tree, where it gradually diminishes in circumference to a small diameter at the top of the tree.

Its roots are powerful and strong. The largest ones run outward, very near to the top of the ground, to a distance equal to the length of the greatest limbs of the tree. These underground roots are to some degree an imitation of the tree above ground—a provision Nature makes for its stability and protection.

The leaves measure from ten to thirteen inches in length by three to four inches in breadth. They are oval at the end—thick and heavy—of a rich dark green color at maturity, which is most beneficial to the sense of sight in this land of bright sunshine and

heat. In summer and winter the tree is clothed in this heavy mantle.

In winter the leaves are a great protection to the tree from cold and assist Nature in her work of beauty. When all other trees are bare, except the Live Oak, whose leaves are dull and brown in color, the Magnolia trees are richly clothed in their leaves of green.

The winter months are only a preparation for the bursting forth, in May, of the most gorgeous and wonderful flowers. The buds begin to form about the first of April and many are open to greet the May-day festivities.

During May and June the tree presents a wonderful picture of many hundreds of these noble flowers. Each new shoot on every limb bears a flower. Just before the bud matures to a perfect flower its white form is a beautiful oval figure, resembling a half-opened rosebud, and is at this time in its most perfect form. In a few hours eight large petals unfold themselves into a flower so large, so rich in its creamy whiteness, yet so pure and delicate, that one touch of the finger, or the breath from one's body, will taint its loveliness and in a few moments the wound will cause a dark brown spot to appear. No impurities dare come in contact with its soft, delicate texture, though while on the tree in a pure atmosphere and sun it lasts for many days. No bloom of any tree or flower is so large, so fragrant, yet so delicate, pure and beautiful.

In the centre of this flower is a small cone of delicate green shade—a wonderfully made thing of beauty—a model of the finest and most delicate workmanship which



A MAGNIFICENT FLORIDA MAGNOLIA

This majestic magnolia is typical of the species. It is well located and so has developed its wide-spreading branches in almost perfect symmetry. The heavy mantle of leaves—a rich, dark green in color at maturity—protects the magnolia in summer and winter, too, when all the others, except the Live Oak, are bare.

only the hand of Nature can mould. At its base and extending upward about half an inch, the cone is a purple shade, in which are stuck many little creamy narrow stems about an inch long. Just where they are attached to this



A YOUNG MAGNOLIA

This tree has attained to height and stateliness, though it is still quite young. Note particularly the heavy growth of symmetrical limbs, reaching nearly to the ground.

purple cone each stem is also purple. Above these, arranged in regularity all over the remaining part of the cone, are from forty to fifty small, round, curling, transparent stems which are to form pockets for the seeds which are to develop later. The Magnolia bloom measures from ten to twelve inches in diameter.

The many large leaves surrounding the bloom are of a bright, tenderest green color—curved and grouped in Nature's most graceful lines.

By July Fourth the last of these magnificent flowers has gone and the cone begins to develop. Each of these pockets is now closed and contains one or two seeds.

The seeds are of the shape and size of a bean, and when full grown are of a bright red color. By September the cones have matured and they begin to fall to the ground. The pockets burst and the seeds fall out. They may be gathered and sold for sixty cents per pound to a perfume manufacturer. A rare perfume is made from them, which possesses the same sweet, delicate scent as the flower, and a soothing calmness pervades one while inhaling it.

It is an old but unfounded belief that the southern Spanish moss is a parasitic plant—that it feeds upon the magnolia in a most appalling manner, absorbing the juices of the tree, and retarding its growth. It hangs in long, graceful streamers from the limbs—very beautiful to the observer, and not fatal to the tree.

But the glory and magnificence of these wonderful trees



A STately MAGNOLIA BEAUTIFULLY FESTOONED WITH SPANISH MOSS

This splendid tree is fifteen feet in circumference at its base. The Spanish moss with which it is so heavily hung may, as some claim, retard the growth of the limbs and leaves, but it surely adds greatly to the picturesque appearance of the tree.

are more fully brought out on moonlight nights. When the atmosphere is clear and with a full moon in the background look up at their mighty statures! They stand in silence, and the graceful contour of trunk and limbs stands out more boldly. Their very greatness seems a protection to one, their beauty a pleasure to one, and a study of them calls one closer to Nature.

THE Pennsylvania Department of Forestry refuses to be scared by the white pine blister rust. Almost 50 per cent of the 3,750,000 trees planted on the State Forests this spring were white pine.

THE KNOT OVER WASHINGTON'S TOMB

BY GAYNE T. K. NORTON

"YES sir, dat ole black walnut am two hundred years ole, an I done cry when she die las spring," repeated the aged and wrinkled black man who stands guard over the tomb of George Washington, at Mount Vernon, Virginia. A quarter wormed more of the tree's history from him, but a refusal the day before of \$2,800 for his house could not be driven from his mind and speech, talk of it he would, toying my quarter the while. Still, what I saw, gathered and heard, not of the colored gentleman's realty, but of the black walnut, was most interesting.

Certainly the old veteran was an aristocrat of tree-land, and its "knot" many traveled far to see. As it is a growth of extreme rarity on a famous tree, soon to be no more in its present condition, and as it has never been "written up," a description should prove interesting. By the time these lines travel the long road to print the tree will have been cut, and the knot transported to the National Museum as an exhibit.

The tree was planted by John Augustine Washington, father of George, on the 2,500-acre farm granted him by Lord Culpepper, in 1674. Until the fall of 1915 it grew as only a black walnut can grow, bearing fruit, giving shade, and lending dignity and beauty to the historic and picturesque home on the banks of the Potomac.

As it stood in the fall of 1916 it had a diameter of more than three feet and a height of ninety. Hanging like a huge nut from the under side of a heavy limb, 25 feet from the ground and 12 from the trunk, was the strange growth, an organic disease, tumor, or cancer, that perhaps caused death, and which certainly made the tree famous.

When viewed from a distance the "knot" has somewhat the appearance of a walnut grown to immense proportions; when silhouetted against the sky from below it gives the impression of a jagged relief map of a strange

continent. Accurate measurements are impossible, but it is well over four feet high and more than five feet through; the weight cannot even be guessed, for the condition of the interior is not known. When viewed from directly beneath, the bulk does not hang evenly, rather it

bulges far to one side, as if North America—the "knot"—was suspended from a straight rod—the limb—which touched Newfoundland, and California at Los Angeles.

About two-thirds of the surface is covered with very rough bark. On the portion nearest the ground is a whorl, almost a cowlick. The bark runs around and up and down, is very thick and distinctly that of a black walnut. The portion not covered by bark is deeply lined, weather-beaten, discolored wood, pricked with innumerable holes, yet sound. It appeared like a flesh wound healed without attention, a bit of living dead-wood. The lines run up and down, are deep and uneven. Around the edge the bark is smooth, humped and rounded. This portion of the knot faces southeast. On the upper portion is a depression into which many of the lines curve, like a miniature whirlpool.

The "knot" began to grow more than 100 years ago, when the supporting limb was a slender branch, so the colored guard affirmed, though he was hardly there

at the time. But he was there 86 years ago and has watched the steady development.

After watching the barkless portion insect activity was discovered, and the sunlight glistened upon the wings of hundreds of Chinese honey bees. The swarm took possession 25 years ago and is still using the "knot" as a hive. Some lay the death of the tree to the bees, reasoning that so much honey has been stored within that the flow of sap has been prevented. None have been allowed to mar or even examine the tree, which accounts for the lack of



Photograph by G. T. K. Norton

THE "KNOT" ON THE BLACK WALNUT THAT SHADES GENERAL WASHINGTON'S TOMB

The cancer or tumor, a large and rare growth on a famous tree. Offers of hundreds of dollars are made for the "knot," but it is destined to go to the National Museum as an exhibit. A swarm of honey bees have been the occupants for twenty-five years, and some claim the honey stored by them has caused the death of the tree by stopping the flow of sap.

accurate figures about the "knot." The bees and birds have been the only investigators.

Almost daily offers for the "knot" are made by curio hunters and other nature-loving visitors; one man was even then, at the time of my visit, trying to purchase it for \$500 and this offer was called "mean and low compared to some" by the guide.

On the beautiful Washington estate are many other grand old trees, each with a story. Three neighbors to the black walnut are interesting: they commemorate the first of a chain of events that all but wrecked the Union. General Washington did not believe in slavery and accordingly set his own free. These first free slaves, free in name only, for they could not have been driven from General Washington, planted the trees about the spot he had set apart for his tomb. After 118 years the trees still live. The two red cedars are rotting, hollow and bent, but time has not been so hard on the sycamore.

The first thing one with an eye for the beautiful in nature will notice at Mount Vernon, particularly if he arrives by the boat, is the number and grandeur of the trees; there are dozens of fine veterans of many species, all perfectly cared for and in fine condition. Comparisons with at-home conditions are involuntary; we regret that our streets and yards are not so beautifully ornamented. Only in one other place have we seen such trees—Washington.

Possibly we all know of specimens, or even localities, that compare well, though it is doubtful if any city can as a whole equal Washington in point of trees. It is they that give it more than half its charm; their powerful influence is quickly appreciated. If possible, they are even more beautiful than the trees of Mount Vernon.

Without them the city would be as all others: great stone piles of modern efficiency. The trees can be thanked for the "human-ness" of Washington, and they show in luxuriance the care given them.

SOME HISTORICALLY INTERESTING TREES

THE following interesting notes, about historic or unusual trees, were sent by Mr. Henry B. Abbott, of Philadelphia, who writes: "I am sending a picture of the Old Oak in the Friends' graveyard at Salem, New Jersey. It is considered the finest specimen of white oak in the State, and its picture has been adopted for use on the New Jersey State forestry crest, or emblem. It is about 85 feet high and symmetrical. Tradition says the British cut out the top during the war of the Revolution. It is supposed to be about 300 years old. Some years ago a currant bush was found growing and thriving in one of the crotches of the old oak, the seed having presumably been carried by a bird, but of course it did not live and has long since disappeared.

"On a trip to Orlando, Florida, some few years ago, I saw an old live oak, to which the Indians came and held their councils. I understand it was the meeting place of the Florida Indians generally, and its situation seems to bear this out. Except for a few

trees in a small segment, there was a large open circle, maybe a hundred feet in radius, without trees. So far as I know, the place or tree has not been photographed. It was only a trunk with a few limbs when I saw it, and I fear it has now disappeared."

Another very interesting tree Mr. Abbott describes as traditionally known to be "the tree where Columbus tied his ships." This is located on the river Osamece at Santo Domingo, and is an old landmark, regarded with veneration and love by the people of the locality.

While we do not vouch for the correctness of its claim to historic value, the appearance of the old monarch inclines us to place some faith in the traditions which surround it. It does not seem impossible of belief that Columbus landed and made fast his ships at this point, when he settled the small colony at Santo Domingo—lovingly named by him "Hispaniola," and where later his remains were temporarily interred. Mr. Abbott continues:

"There are, a mile or two west of Had-



WHERE COLUMBUS TIED HIS SHIPS

A veteran tree at Santo Domingo, marking the spot—so local tradition has it—where his ships were made fast when, on his second voyage of discovery, Columbus founded Hispaniola.

donfield, Camden county, New Jersey, two yew trees, which I think are about 200 years old. Elizabeth Haddon was the settler of Haddonfield. There is an interesting account of her in a book called 'Social Hours with Friends.' After she had been over here two years she went back to England to see her parents, and then returned, bringing these two little trees in two little pots. They are now in rather



THE OLD OAK AT SALEM, NEW JERSEY

This beautiful and symmetrical old tree is located in the Friends' Graveyard, at Salem, New Jersey, and its history dates back to the days of the Revolution. It is about 85 feet in height and, despite its age, is considered to be the finest specimen of white oak in the State.

a dying condition. Like the English yew, they are bush-like, with several trunks. A five-cent trolley fare from Camden takes you past the farm.

"Did I mention the old cypress tree here in Bartram's Garden? John Bartram was the botanist of the country at and before the time of the American Revolutionary war. He received many gifts from across the ocean and this young tree was one of them."

RUSSIA'S LUMBER INDUSTRY

THE importance of the lumber industry in Russia is figuring largely in the plans for Russia's export trade after the close of the war. The demand for building materials will be unprecedented and the vast resources of Russia's forest wealth have scarcely been more than touched. Furthermore, hundreds of square miles of forest in the crown lands now confiscated are available for exploitation. With the marvelous increase in the harbor facilities of Archangel and Vladivostok and the extension of railroads in the forested districts, this industry has a big future. In 1913, the last year of normal export, lumber worth 165,000,000 rubles was exported. By the closing of the Baltic ports this export has been reduced to a valuation of 27,200,000 rubles. Vast stores of timber have accumulated, and in Archangel alone 65,000,000 rubles' worth of timber is ready for shipment. In 1916, when an increase in exports is noticed, little big timber was shipped, the exports being mainly pine for matches and spruce for paper pulp. Domestic consumption of timber has been large, a considerable quantity being required for military purposes. The demand for railroad ties has been great and the erection of factories all over the country at a time when unusually heavy demands were made upon railroad facilities has caused many of these factories to burn wood instead of coal. As, however, the Ministry of Agriculture possesses a modern and progressive Forestry Bureau, this use of timber for fuel is being managed in such a way as to increase rather than deplete the great forests of Russia.

WISCONSIN'S FOREST PLAYGROUNDS

THE Wisconsin Conservation Commission has completed plans for the utilization of the state forest lands, and has worked out a general plan to make the northern Wisconsin region, the land of lakes, a playground for the entire Middle West, by throwing open state lands for campers and summer visitors. The State plans to carry this work of developing the pleasure resources of the forest to the greatest extent, and has devised a general system by which long-time leases will be given for a few dollars a year to those who wish to build summer cottages. The State also will build some cottages for rent in the state parks and in the forest reserve, and is providing portable cottages for other locations. For those who do not want any of these, the Commission is arranging to lease tent sites. Meanwhile, the Commission is planning a campaign to prevent forest fires with the assistance of the lumber manufacturers who own forest land, on a plan for cooperative work in maintenance of a force of forest rangers and fire wardens. This is already being done in upper Michigan, and Commissioner Frank B. Moody at the last meeting of the Northern Hemlock and Hardwood Manufacturers' Association started a formal movement for such a cooperative campaign. The State is going ahead with its plans to make its forest reserve region, including Vilas county, which alone has 1,200 lakes, as though the war were to end immediately, so that the summer resort life may be carried on despite the war, and is offering special opportunities for the wives and families of those who may be busy on the business of the war.



Photograph by W. A. Fishbaugh

ONE REDWOOD TREE AS A SOURCE OF BUILDING MATERIAL

An order for 100,000 feet of lumber is not to be disregarded by the lumber dealer, for 700,000 feet is a good deal of merchandise in his line. To a giant redwood, however, it is nothing at all. In this picture may be seen Luther Burbank leaning against one of the patriarchs of the Ah Pah tract. This particular tree is eighteen feet in diameter and would easily yield 100,000 feet of merchantable lumber. The Ah Pah tract in Northern California, owned by Charles Willis Ward, contains many of these giants, and it is unlikely that heavier stands of timber can be found in the Redwood belt than those in this neighborhood. Among these trees there are veterans which were well grown at the beginning of the Christian Era. Some of them are 3000 years old.



Photograph by W. A. Fishbaugh

MORNING FOG AMONG THE REDWOODS

Fog and the Redwood seem to go together. Wherever you find the giant trees at their best you can count with confidence on a daily bath of fog. The clouded streaks in this picture are not an indication of defective photography. They are accurate portraiture of the morning sunbeams breaking through the fog as they prepare to drive it away. This occurs between nine and ten o'clock each day during the summer season and those familiar with the California forests agree that it is one of the most interesting manifestations of nature's routine program. The spectacle is an unfailing source of interest to visitors to whom it is new. Some idea of the size of the trees may be had by noting the relative insignificance of mere man as shown in the foreground.



Photograph by W. A. Fishbaugh

THE BEAR'S NEST IN THE REDWOODS

This picture shows a camping party at the foot of the group of Redwood trees known as the Bear's Nest. Luther Burbank is to be seen at the left. His expression indicates his admiration for the skill displayed by Nature in the grafting operation which welded these trees together at the top. The Bear's Nest, which is in Northern California, is easily accessible to visitors and camping parties, for Charles Willis Ward, owner of the land on which the trees have stood for centuries, has connected the various remarkable clumps of giant Redwoods by pleasant trails communicating with the central campground of his Ah Pah tract. Last August Mr. Ward and some of his friends spent their annual vacation at Ah Pah Ranch, as he has named his camping grounds. "We never open a tin can at the camp," is the owner's boast, "as our garden provides a bountiful supply of vegetables and fruits." Is it any wonder that the place is popular with campers?



Photograph by W. A. Fishbaugh

PROPINQUITY MAKES AFFINITIES EVEN OF TREES

These Redwood trees have grown together at the top, and this photograph, which was taken from the ground with the camera pointed directly skyward, is proof that Nature is a grafter when opportunity offers, as the joining of this group of great trees could not have been more skilfully wrought even by an expert hand. The trees are known as the Bear's Nest, a group of giant Redwoods which grew so closely to each other that their amalgamation was inevitable. They are on the Ah Pah tract, a great timbered park in Northern California, owned by Mr. Charles Willis Ward. Surrounding them are innumerable Redwoods of immense size that would yield nearly half a million feet of lumber to the acre. Another view of the Bear's Nest group, showing how it looks nearer earth, appears on the opposite page.

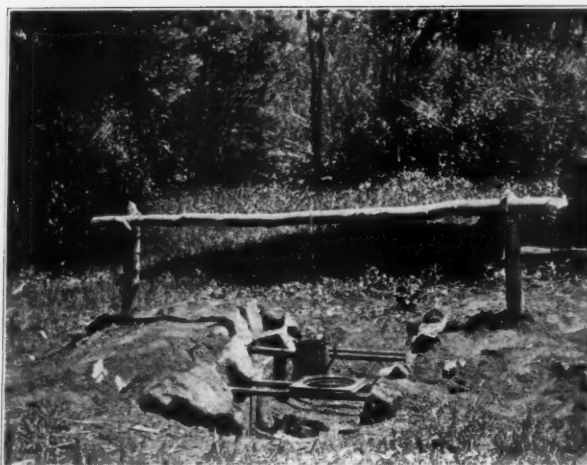
"PRIVATE PROPERTY—NO CAMPING"

BY SMITH RILEY

DISTRICT FORESTER, DENVER, COLORADO

"WELL, of all the messes I ever saw this is the worst. Why can't travelers show a little more consideration for other people's property and for other travelers who follow them?"

The speaker was an owner of land, along a popular fishing stream, traversed by a state road noted for its scenic features, and his remarks were called forth by the sight of a particularly attractive corner of his property strewn with



WHERE CAMPERS ARE ENCOURAGED

The United States Government is contributing generously to the comfort of campers, rich and poor alike. In National Forests tourists will find camp sites laid out for their use and forage preserved for their benefit. In this picture is shown a typical fire-place built by forest officers in recognition of the needs of campers. Maps are provided and the Forest Service is doing much to stimulate the recreational use of the parks.



FREE CAMP GROUND IN DENVER PARK

Enterprising cities in Colorado have taken steps to meet the public need and demand for places in which camps may be made. Denver has converted a part of one of its largest parks into camp sites which may be occupied free of charge by motorists and others who come with camp equipment, with the assurance that no signs will be found warning against trespass.

papers, lunch boxes, and broken beer bottles. The smooth bark of a nearby aspen tree had been completely disfigured by numberless initials of those who, after enjoying the beauties of the spot, thoughtlessly abused the privilege accorded them of camping there. As the owner saw the matter, nothing remained for him to do but to place a strong wire fence between his land and the road, and on it to display a "No Trespass" sign. Such signs have blossomed along public highways in all thickly settled portions of these United States.

I recall an incident: a family started out one Sunday by automobile for a day in the open. When lunch time came the car was passing through a river bottom bordered with large trees and green banks. Wire fences lined the road closely, so that this party left their machine beside the road, crawled through a somewhat dilapidated wire fence, and proceeded with joy and large appetites to eat

their lunch amid the attractive surroundings. Soon a party of horsemen appeared upon the road. Reaching a meadow on the far side of the river, they entered through a gate, pulled off the saddles and turned their mounts loose to graze, roll, and trample the tall grass. After lunch this second party produced guns and proceeded to disfigure the bole of a large tree by shooting at a mark. The report of the guns disturbed stock in a nearby pasture, and at the same time caused their own horses to trample a great amount of grass. Soon an irate owner came upon the



AN ATLAS OF THE ROADSIDE

As a part of its policy to encourage the recreational use of the National Forests the Forest Service posts map-signs at strategic places along the roadside in the public domain. In the foreground, near the left margin of this picture, is shown a signboard on which is posted a map of the neighboring road system in this forest. On the tree in the center is a sign giving additional information.

GOING FISHING?

THE FINEST TROUT STREAMS, THE BEST HUNTING GROUNDS AND THE MOST BEAUTIFUL CAMPING PLACES IN AMERICA ARE TO BE FOUND WITHIN THE NATIONAL FORESTS.

90,000,000 PEOPLE

ARE JOINT OWNERS OF THE NATIONAL FORESTS

YOU

ARE ONE OF THIS NUMBER

HELP PREVENT FOREST FIRES

LIGHTED MATCHES, CIGARS and CIGARETTES are DANGEROUS. PUT OUT YOUR CAMP FIRES BEFORE LEAVING. DON'T BUILD BONFIRES.

KEEP THE FORESTS GREEN.

U. S. Department of Agriculture Forest Service

INVITING YOURSELF TO FISH

The National Forest Service goes on the theory that the 90,000,000 people of the United States are the real owners of the National Forests. Evidence of this is afforded by signs like the one pictured above, in which citizens are made to invite themselves to fish, hunt and camp on their own property. Prospective tourists will do well to note the injunction as to preventing forest fires on their own property.

scene to drive off the party of riders. This done, he approached the automobile party and in very abusive language ordered them out. They were responsible for all the trouble, he explained, because the riders would never have entered the meadow had they not observed the automobile party inside the fence across the river. The owner went on to say that he did not object to visitors who did not injure his property, but that in this case real damage had been done, and therefore the party must leave at once. It is due to such incidents as this that the number of "No Trespass" signs steadily increases.

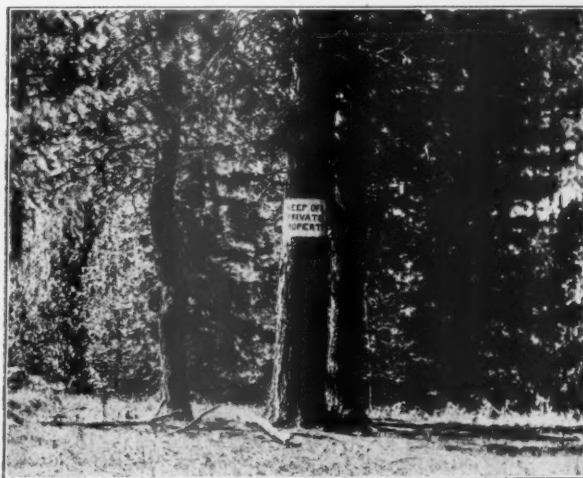


NOW BEAUTIFUL AND INVITING

But, disfigure the trees and strew the ground with empty pickle bottles and papers, and then—can we blame the owner for posting "No Trespass" signs?

A long step in this direction, and almost the first of its kind, has been taken in the case of the National Forests. No finer recreation grounds exist anywhere, and each year a greater number of people come to the Forests for the pleasures of outdoor life. The Forests belong to the public, and are being developed for its benefit. Here is an example: the east entrance to the Yellowstone Park is through the Shoshone National Forest. Thousands of wagons and pack and saddle horse parties pass over this road in a season. Imagine the inconvenience to the traveler if this road were lined with fences and "No Trespass" signs. But it isn't. On the contrary, the Forest Service has set aside a strip of country upon each side of the road where visitors to the Park may graze their horses. Certain places have also been reserved as camp locations, and signs are posted along the way for the visitor's guidance. In short, upon this much-used thoroughfare the visitor's needs are considered first; nothing is permitted to interfere with his enjoyment.

It is the same in other places in the National



HOW OWNERS PROTECT THEMSELVES

Those who have seen the damage wrought by some campers do not consider it strange that owners of land should steadily increase the number of "No Trespass" signs. If all campers would show the proper attitude toward the rights of property owners these signs would be unnecessary. Because of the custom of strewing papers, lunch-boxes and empty bottles over temporary resting places, and the actual damage sometimes caused, the owners display the signs in self-defense.

Forests visited by pleasure seekers. Camp sites are laid out and forage reserved for the traveler's benefit. Signs posted in conspicuous places ask him to use care with fire and to leave his camp site in a sanitary condition. Garbage pits are provided in which he may burn litter and waste-paper. In this way it is hoped to educate the visitor in ways different from those which arouse the ire of private land-owners. The signs tell the camper, for one thing, that he is part owner of the National Forests, and that injury to them means injury to his own property. Other than the rules regarding fire and proper camp sanitation, there are no restrictions upon those who come to the National Forests for recreation. Maps of the Forests, showing the location of attractive camp sites, fishing streams, postoffices, telephones and ranger stations, are distributed by the various supervisors. The recreational resources are being developed in the same way as the other resources, like timber, water, and forage. They are open to everybody on equal terms, and are meant for the enjoyment of the man with the slim pocketbook as much as for the man with the fat one.

In marked contrast with conditions in the National Forests are those on most privately owned tracts. Here, for example, is a lake famous for its fishing, used by many people as a recreation ground. The lake is situated so as to make it possible to impound a supply of water for electrical power. A power company obtains a deed to the land surrounding the lake and builds a dam. This enlarges the lake, making it of even greater value for recreational purposes, but as soon as the power company gains control of the land it sticks up signs warning the public to keep off—the land is private property.

Recreational use of the borders of the lake would not in any way interfere with the impounding of the water. Had the title to the lake shores, which were once the property of the Federal Government, been retained under public control and an easement given the power company to impound water, the company would have had all that was needed for the development of power, while the public would have had the opportunity to enjoy the lake. As it is, the opportunities for recreation which the lake affords are wholly wasted.

I know of a National Park that is approached along the valley of a river where there is much patented land not cultivated or cropped. In days gone by the owners of

these lands did not protest against the public using them, for in those days few people came to the region. Nowadays, however, travel over this road has increased two or three hundred per cent, and "No Camping" signs have blossomed forth everywhere, while long stretches of the road have been fenced. One owner of a considerable amount of land in the vicinity has announced his intention of developing water upon his property and allowing visitors to camp there. It should be explained, however, that for the use of this camp location a charge is to be made of \$1 per day per person.

Several cities in Colorado have already taken steps to meet the need for public camping grounds. Denver has set aside in its largest park an area which may be occupied free of charge by those who motor with camp equipment. Colorado City and Colorado Springs also have free camping areas where motor visitors are welcome.

To come back to the National Forests, I should like to quote from an article published in a Denver newspaper:

"The Government, by its well-worded, cordial invitations and the magnificent roads it creates and maintains, will eventually draw the public to sections where liberty instead of restraint is in the air. Perhaps the most striking illustration just now is the boulevard from Steamboat Springs to the top of the Rabbit Ear Range. Here are twenty-five miles of perfect road, thoroughly signed and posted, through a fern and flower country of such magnificence that a visit only can tell its glories. The movement is young, but one who runs can read that the day of barbed wire and selfish restraints on the tourist is doomed."

The road referred to was built by the Forest Service, in coöperation with the counties concerned, through the Routt National Forest. It is one of a great system of good roads which the Forest Service is building in the National Forests as a means of opening them up to the public. The sum of \$10,000,000, to be spent a million dollars a year for ten years, was appropriated by Congress in 1916 for National Forest roads. A sum equivalent to 10 per cent of the gross receipts of the Forests is also available annually for road building purposes. In time the full recreational possibilities of the National Forests will be made available for the enjoyment of the American people. In the promotion of public health and public happiness the Forests promise to be a tremendously valuable national asset.

FOREST fires in the United States have caused an average annual loss of seventy human lives and twenty-five to fifty million dollars' worth of timber. The indirect losses run close to half a billion a year.

THE California State Forestry Department has thrown open to the entire state, and those from other states, the state forests as a national pleasure ground, in the theory that by thus treating the national forests the future of the forests is best assured.]

SAVE coal by burning wood which can't be used for anything else. The fuel value of two pounds of wood is roughly equivalent to that of one pound of coal.

WHEN cutting firewood, remove the poorer species first from your woods. Defective chestnut might as well be cut, for the blight will surely get it. Soft maple, gum, sassafras, catalpa, aspen, and hackberry are not often valuable for other uses.

OVER 40,000 forest fires burned 5,900,000 acres of forest in the United States in 1915. About 1,100 of them burned 380,000 acres in Pennsylvania.

NO wonder newsprint is scarce. There are 2,580 daily newspapers in the United States. Over 800 have gone out of business since the rise in paper prices began.

CACTUS LAKES

BY FRANK COYNE

CACTUS growing in standing water! Cactus, the one plant above all others associated by the layman with the desert. Yet here are vast expanses of forests of cactus growing in standing water, with here and there little islands appearing but slightly above the general level. Certainly, a remarkable phenomenon to one familiar with the cactus in its normal habitat. Through our great dry West great areas of desert land, whether in the Mojave desert in the California-Arizona section, or in the Great-Basin and Western Colorado Plateau country of Nevada and Utah, one will find cactus growing in its typical zero-phytic habitat, on the driest of soils, together with its frequent associate greasewood and sagebrush.

Down in the Dutch West Indies on the island of Curaçao, just off the Venezuelan coast, is the site of these pictures. To the blacks living here in their little thatched huts and content to earn a living on a few acres of maize, cactus is perhaps the most common plant, and quite a factor in their lives. It furnishes practically all the material for their fences or hedges; the housewife in the morning throws the washing at the windward side of the cactus fence to dry (and more than one indignant traveler and tourist has pondered over the sight of holes in his palm-beach suit or shirt); and perhaps at "medio-dia" she cuts a few of the tender tips from her fence and washline for soup! I've actually seen goats grazing on the species shown in the pictures, whose spines are anywhere from one to five inches long. And let it be remembered that the species eaten by the goats is not the "spineless Burbank cactus."

Five species of cactus are found here on the island, and to botanists the names of *Cereus*, *Opuntia*, and *Melocactus* will be familiar. *Cereus*, the species seen in the picture, and called by the natives "Dattoe," in their "Papia-

mento" language (which is a patois of French, English, Spanish, Dutch and Portuguese), is the most common and is to the thatched-hut dwellers here, in its diversity of uses, what blubber is to the Esquimau in his igloo.

In Curaçao this species grows on all soil formations and at all elevations, from the beach lapped by the Caribbean to the top of the highest peak, St. Christoffelberg. On the



THE FOREST OF CACTI

General appearance of cactus forest on the Hato Plains after heavy tropical shower; Curaçao, Dutch West Indies.

hill-tops one finds it associated with Brazil-wood and *Lignum Vitæ*, where lazy iguanas lie in the branches of the trees and where tiny chameleons run along the branches and trunk of the Wajaaka.

But what a strange anomaly! In Utah the Sego lily, a desert flower, and the cactus grow side by side, while here in Curaçao on some of the driest sites are found orchids growing in profusion on cactus, and in other localities cactus, in standing water, where one might naturally expect waving cocoanut palms in the place of the defiant spiny cactus, which in many places attains the height of twenty feet and extends in unbroken stretches along the north coast for many miles.



A CACTUS LAKE

This unique photograph shows part of the forest of cactus growing in standing water in the Dutch West Indies—a most remarkable thing to see when one has been accustomed to associating this plant with driest of desert surroundings, but we must admit that it is only a temporary condition.



THE CACTUS SWAMP

Swampy expanse of cactus, Curaçao, Dutch West Indies. The region is naturally one of extreme aridity and this apparent phenomenon is explained by the fact that the photograph was taken after a heavy and rare tropical shower.

The explanation, however, for this in this locality is simple, though I venture to say that the same phenomenon in other desert countries is extremely unlikely. Curaçao, an island in the tropics, is one of drought and scanty rainfall. These dry conditions account for the presence of the cactus, but what about the lakes? The pictures were taken during the wet season. Recently, while walking along the north coast of the island from Jofje Aban to Santa Maria, I was caught in a heavy tropical shower. The soil there was very thin and barely covered the coral-limestone rock. The thin covering of soil is just sufficient

for the growth of the cactus, and the coral-limestone rock being practically impervious to water held the precipitation for quite a while, forming in many places small streams and in others large temporary lakes. For three hours after the rain had ceased I had the unique experience of walking through a forest of this giant tree-cactus which underfoot had the appearance of a swamp. The next day all signs of the lakes had disappeared and the desert was as before, with nothing but the braying of an occasional burro or the hawking and screaming of a few parrots to disturb its silence.

PINE BLISTER IN MICHIGAN

CLOSE on the heels of the Department of Agriculture's quarantine against the shipment of white pine seedlings from areas, where the white pine blister disease is doing its destructive work, to other sections of the country, comes the discovery of the disease in a nursery near Detroit, Michigan. Prior to this time the disease had been widespread throughout the New England states, but has rarely been found much further west.

Federal agents employed by the Bureau of Plant Industry of the Department of Agriculture made the discovery, learning at the same time that the nurseryman had known of its presence for the past six years in a certain lot of imported pine and that a dozen or more diseased specimens had been destroyed during that period. Shipments have been made regularly from this stock, but fortunately the business is largely local, so that the disease has probably not spread greatly through this channel. A complete survey is being made in Michigan to discover and stamp out the disease.

SCHOOL FORESTS ESTABLISHED

ARBOR DAY has been widely celebrated throughout New York State this year by the establishment of school forests. Among the villages which have taken up reforestation work on reservoir sites, undeveloped park lands and worn-out pastures are Fort Edward, where 15,000 red pines were planted on April 12th and 26th; Port Jervis, where the forest started last year in the Elks' Park was extended by the planting of 1,000 Norway spruces on April 19th; Ballston Spa, where the school children put out 1,000 red pines; Randolph, where 2,000 evergreens of various kinds were planted by the pupils of the high school on park land; Newburgh, where, through the cooperation of the public schools and the Chamber of Commerce, 2,000 Norway spruces were added to the forests started last spring on the reservoir lands of the city; Wellsville, where the new waterworks was dedicated on May 11th by the planting of 1,000 forest trees on the reservoir slope, and Ellenville, where 1,000 trees have been planted on land owned by the village.



THE FORESTRY BUILDING AT SYRACUSE

New home of The New York State College of Forestry at Syracuse University, built by the people of the State of New York at a cost of \$250,000, and occupied early last spring.

NEW YORK STATE COLLEGE OF FORESTRY BUILDING

NEW YORK State has taken her place among the foremost states in forestry education by the erection of a beautiful building on the campus of Syracuse University to house the New York State College of Forestry. Under Dean Hugh P. Baker, the college has made rapid growth since its organization in 1911 and has been in urgent need of this new building. Built at a cost of \$250,000, with \$35,000 additional for furnishings, it is said to be the largest and best-equipped structure in the country used exclusively for forestry educational purposes.

It was announced in November, 1914, that the Eastern Forest Products Laboratory would be located in the new building. As soon as the \$20,000 worth of machinery and apparatus can be installed, the college will be in a position to carry on investigative as well as educational work. Wood working, wood distillation, timber testing, timber preservation, and pulp and paper making laboratories will be fitted up and practical courses in these several lines established to train young men as experts.

In point of beauty this building is worthy of some note. Situated on an elevation overlooking the city of Syracuse and occupying an isolated section of the campus of the University, it makes an imposing sight. It is constructed in the Renaissance style of architecture and has three stories and basement. Indiana limestone and tapestry brick are used with very pleasing contrast. A retaining wall of limestone rises fifteen feet above the concrete base and the brick construction is used for the upper portions. The dimensions are 280 feet by 66 feet.

The main entrance is exceptionally spacious and the broad, ornamental granite approach is flanked on either side by huge blocks of dressed limestone, each weighing

nearly two tons. Four Corinthian pillars, of limestone also, are built into the front of the building and support a broad band of the same material in which is carved, "The New York State College of Forestry." Centered above this inscription is a large seal of the State of New York carved in limestone. The window ledges and cornices are also of limestone, carrying out the effect of the contrast between the gray of the limestone and the warm red of the tapestry brick to the fullest extent.

The interior is arranged to secure the greatest convenience possible. A rotunda occupies the center of the building and the corridors run from it lengthwise. The offices of the dean and the business offices radiate from the rotunda, while the departmental heads have offices on the corridors. The lecture rooms and laboratories of each department are grouped nearby. A unique feature of the building is the decorative scheme used in the rotunda. It is finished in marble with massive pillars and into the walls are set specimens of 118 different species of woods, each highly polished to show the grain, and labelled. Stairways have thin marble steps with balustrades of ornamental iron and oak. Floors in all the rooms are of maple.

Everything conceivable in the way of equipment is incorporated in the structure. A big mailing room to handle press bulletins and other publications issued by the college occupies a section of the basement, and lavatories, locker rooms, and shower baths are also located there. A large library with a well-lighted reading room and ample stack space makes study pleasant and convenient. The Forestry Club of the college will also have rooms in the building. An assembly hall with a seating capacity of 300 serves for lectures and for various gatherings.

Forestry for Boys and Girls

by Bristow Adams

THE TREES AND WAR



WITH all the talk of war, and all the need of doing our best to win that war, we can not help thinking of the place that the trees have held, and will hold, in man's strife with other men. It seems too bad that the great, patient trees should have a part in anything so bad as war is. If they have souls, they must be as surely against the crime of warfare as all right-thinking men are against it. I speak of war in this case as I would speak of slavery or of any other crime against humanity that ought to be done away with.

As for the present war, we are in it now, and the only way out is forward. We have got to see it through, and I find, each day, that I feel more strongly than the day before that I should like to be at the front, in the thick of it, that I might help in that way or in any way to make war less likely in the future. Our Congress has stated that we are to take our part for the good of the people of the world, and our President has approved of that course. All of us support our Government in this idea. Our duty is to make it more easy for the everyday folks to say how they shall run their affairs, instead of having these affairs run selfishly by kings, and dukes, and uniforms, and gold-braid, and pride-of-birth, and lust-of-power.

Peace is no less blessed than it ever was, and war is no less cruel. But the first thing right now is to help bring about, even through war itself, a world-wide belief in the rights of the many to make their own rules for the greatest good of the greatest number, as against the wicked selfishness of the few. If all the great nations—and the German people

form a great nation—will come to a belief in what Abraham Lincoln called "a government of the people, by the people, and for the people," then we can be pretty sure that war will cease. And we are fighting now to safeguard that form of government,—Democracy,—in Europe as well as in America.

MY two boys are too little to realize what war means. They would be much pleased to see their father in a uniform, and to have him carry a flag, or shoot a gun, and march away to fight the enemy. The older one is very proud of the soldier grandfather who fought against slavery, and they would be just as proud to have their own father fight against the equally wrong use of power in the present day.

With the girls it is different. They are older, and they know what it might mean if the other fellow shot first and shot straighter, or if a ship were blown up and all those on board were drowned. I overheard one of them a few nights ago, and got about what the eavesdropper is said always to get.

She was saying her prayers, and, as I remember, a part of the prayer was about like this:

"Dear Lord, even if father is right mean to us sometimes when we don't really intend to be bad, please don't let him go away to the war and get killed."

I tiptoed away with some very mixed thoughts.

WE are all trying to do our bit, as they say in England. Early in the morning, and after the day's work is over, so long as there is light, we are gardening to help raise the food that we will need this summer. Even the little boys have staked out tiny plots, and have bordered them with the rough stones that they spaded up. One of the girls was inclined



to find fault with her brother because he was planting flowers, but he said that the flowers were just as nice now as they were before the war began, and I think he is right. I am planting trees and shrubs as well as vegetables. The hedge-row flowers of England bloom untrampled today because some little girls' fathers and brothers are in the blood and mire at the front.

INDEED, it seems to me that the war should not make those at home do any less the things that they always should do; and I am almost sorry that it took a war to make us see that every one should do his part to help serve the world with food and clothing, and other products of the soil. There is nothing that we are doing now in the great gardening campaign that we ought not to have been doing for the past ten years, and that we ought not to keep on doing, with improvements, for the next ten years and more to come.

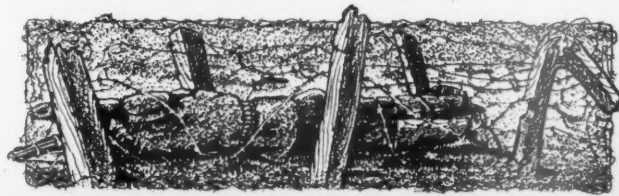
For example, there is more reason why we should plant and care for trees, and protect them from all sorts of harm, than there ever was. We have seen the pictures of the forests of Europe burned and shattered by shell-fire, cut away to make room for cannon, destroyed to go into trenches and stockades, and roadways and bridges, built into barbed-wire entanglements, even supporting that real ring of steel, the barbed fence charged with a death-dealing electric current, that surrounds poor Belgium. If there were truly "tongues in trees," as Shakespeare says, they would be crying out in horror at being put to such inhuman uses.

OUR own trees will have to help make up for those which have been so badly used. Maybe some of ours will be put to the same kinds of purposes. Trees are more important in war than they ever

have been before, even counting the time when the spongy palmetto logs of Fort Moultrie formed such a sure defense against the cannon of the British vessels.

In former times, when the eyes of an army were formed by cavalry, which scouted ahead and brought back word as to where the enemy might be, it was possible to hide whole regiments in deep valleys or ravines, or behind hills and thick woods. Nowadays, with airplanes taking the place of cavalry, all these hiding places can be easily seen from above, except those which have a screen of trees over them. On the battlefields of France today the great batteries are hidden from the scouts of the air by being placed in groves or forests, and where no trees are growing great branches are set up to cloak the batteries.

This is a serious time. It is no time for being nervous and panic-stricken; it is no time for ill-considered action, or for starting new and untried activities or new ways to do things. The great conservation movement, which started with forestry, was never so important as it is now; and if we had seriously heeded its call eight years ago we would now be about eight times as well off as we are today. Its program is as good now as it was then, and its program ever looks to the future, as we must all look to the future. The home gardening of today should not be for this year, but for all years to come, and little that we can do will bring quick results now. Next year there will be even more need for thrift, more need for planning and planning. Let us each do our part as we see it to do, with all our hearts and with all our strength. We must win the fight. Then our forests will be put to good and peaceful uses, and then no little girls should ever have to pray that even a cross father might not have to go away to be killed.





PRACTICAL ENTHUSIASTS WHO DID THE PLANTING NEAR ALTOONA, PENNSYLVANIA

A group of the planters—mostly Boy Scouts—who made such a good record in putting out the little trees on Kittanning Point, part of Altoona's watershed, under the personal supervision of District Forester Ludwig, of the Pennsylvania Forest Service.

ALTOONA'S WATERSHED FORESTED

TROOPS are guarding the water supply reservoirs of most of our cities to prevent poisoning of the water by alien enemies. Fortunate is the city that has taken the necessary measures to insure a pure, even flow of water to the homes in its environs the year around, in times of peace as well as war. The protection from denudation of those lands adjacent to reservoirs or other sources of supply is the essential thing. The ground cover must be retained for its cleansing ability in removing impurities from the water and for its absorptive powers, which equalize the flow. Planting of trees on such lands is the only satisfactory and permanent method of accomplishing the desired end.

Altoona, Pennsylvania, has adopted a broad policy in this connection. In April and May of last year, 30,000 one- and two-year-old seedlings were planted on Kittanning Point, part of the watershed of the city's reservoirs, and

an appropriation has been made to carry on the work from year to year. Twenty thousand seedlings started in plantation last year will be set out this spring. White Pine, European Larch, Scotch Pine, White Ash, and Pitch Pine are being used and the first year's planting shows that ninety to ninety-five per cent are thriving.

The Blair County Game, Fish, and Forestry Association was the first to realize the need of this work and to call it to the attention of the city officials. The Commissioner of Parks and Watersheds immediately cooperated with the organization and the aid of the Boy Scouts in the section was secured. Most of the actual work of planting was done by the boys and they made a good record for themselves by setting out 18,000 trees in one seven-hour day. The trees were furnished by the State of Pennsylvania and the work was superintended by District Forester Ludwig of the Pennsylvania Forest Service.

HAWAII'S EFFECTIVE LAWS

HAWAII has now had her 798,344 acres of forest preserves under the control of a Division of Forestry for a year and the rules in force have worked out very well. The law, passed in April, 1916, provides penalties not to exceed five hundred dollars in amount for violations of its provisions, which are based largely on the regulations in force in the National Forests administered by the United States Forest Service.

The cutting, killing, removal, or injuring in any way any tree, the grazing of any animals or the hunting of any wild animals on forest land under the control of the Division of Forestry, is prohibited except as authorized by permit from the Superintendent of Forests. The wilful dis-

turbance or defacement of signs, survey monuments, or marks of any kind, the destruction of property of any kind, the leaving of refuse which will render the forest unsightly or pollute the waters of the forest, and "squatting" on government land or erecting any sort of construction except as otherwise allowed by law are all punishable by fine.

More than 250,000 acres of the 798,344 under the control of the Forestry Division are privately owned. C. S. Judd, Superintendent of Forestry for the Territory of Hawaii, and five Forest Rangers appointed by him, make up the organization which is effectually caring for the Hawaiian forests.

EDITORIAL

THE FOOD GARDEN AS A CHARACTER BUILDER

THE main business of life is to learn how to live. How few of us choose wisely in what we strive for!

Experience and results are the only sure tests of value. Yet our standards must be fixed, and our ideals formed largely before we are fifteen, when the wisdom of our elders too often seems dry as dust and overcharged with caution. To the typical young American pleasure and amusement appear not as relaxation from duty, but too often as the chief aim in life. And too often, also, overindulgent parents seek only their children's happiness, and themselves forget that contentment can come only from a normal balance between work and play.

The American boy, especially the boy who lives in the city or small town, either has far more time for play than is good for him, or else he is employed at routine labor in which he has no interest, and which robs him of his youth and initiative. Every child should be encouraged to undertake some constructive task in which he can reap the fruit of his own exertions.

A vegetable garden is a golden opportunity for the development of character. The youth should be given his own plot of ground, and, if possible, he should buy his own seed, make his own choice of crops, guided by a word or two of advice—and, above all, he should receive market prices for the products which he raises, paid in cash by his parents or neighbors, on delivery. Many farmers' sons forsake the home place for poorly paid positions in the city, not because of the drudgery of the farm, but for the sole reason that they are given no tangible return or personal interest in the product of their labor. Most city boys grow up in the densest ignorance of that partnership between man and nature, the cultivation of the soil, upon which rests the prosperity of any nation. The planting, tending and harvesting of a crop of vegetables, and the final real-

ization of a money income from its sale, teach the young proprietor perseverance, responsibility, and initiative and the greatest lesson of all—the fact that success in actual business undertakings is attained only by continuous attention and industry. Such an undertaking will help to overcome the desire to make money by trickery and without exertion—an idea so often absorbed by young people to their ultimate undoing. The boy who will forego his pleasures when the garden needs weeding and who will carry through his enterprise can be trusted to make good in other fields of endeavor which have nothing to do with agriculture. His outlook, too, is permanently broadened and his interest in life increased. But a child must have incentive for what he does. Patriotism has a strong appeal to the young and the thought that in this way he is actually helping our nation to win the war for human liberty will be a powerful motive for the undertaking. But boys from eight to twelve years old cannot be expected to grasp the abstract idea of service for the sake of principle, when the effort is shorn of all tangible rewards and mother simply appropriates the results for the family dinner table. Parents will do well to remember that the few dollars which they may be called upon to pay to the boy, when he proudly offers them the products of his own garden, are worth many times their value in character building.

The greatest good is accomplished with youths under twelve to fourteen. These little fellows cannot very well prepare the soil as thoroughly as it should be done; the initial spading should be done for them by some older person. A plot of ground as small as 10 by 50 feet will yield produce worth as much as \$20.00, and a boy can easily care for this much ground. Has this aspect of the food garden ever received from American parents the attention it deserves?

PROCRASTINATION IN INDIANA

DURING the fall of 1916 the American Forestry Association endeavored to point out to the people of Indiana the reason for the almost complete failure of the state forestry law to secure efficient results. This law has been in operation for twelve years. In its general plan of organization it followed the pattern of those states which have been successful in forestry—in that a State Forestry Board was created, composed of five men chosen for professional or personal interest in the subject.

But there was one fatal defect—this board was not given control over its own agent. The secretary, who was intended as the executive and forester, and who should have been appointed by the board and been under its direct oversight, was instead made a member, of equal authority with the others, and was appointed by the Governor.

It would have been possible for the Governors of the state to have appointed to this position men of the proper professional training in forestry, without which progress and initiative are practically impossible. The law even required that the secretary should have forestry training. But out of three appointees, each holding for four years, only one had even a rudimentary knowledge of trees from a botanical standpoint, and the last appointee, whose term expires July 1st, was frankly ignorant of the entire subject.

A vigorous effort was made in the legislature this last winter to remedy this defect by giving the board the control of its own affairs, but the bill failed of passage, thus permitting the old and discredited plan to remain in force for another term. The Governor has appointed as secretary a public-spirited citizen, who has no professional knowledge

of forestry, and who has recognized the fact by appointing as his deputy a former secretary, the only one whose work was worthy of commendation. It is probable that under this management the Forestry Department in Indiana will make a reasonably good showing in the next four years.

But the real question is not settled. The state is no further ahead than it was in 1908 when this same acting secretary was appointed—only to be replaced in 1912 for purely political reasons.

Only one plan has ever stood the test of time and ex-

perience, in state forest organization, during the 20 years or more since the movement started—and that is the creation of an independent forestry board entrusted with the direction of state forestry affairs, *empowered to appoint the state forester*, and required by law to secure a trained man. Until Indiana comes to recognize this principle the state may look forward to future setbacks and upheavals and to an indefinite postponement of the solution of several great economic questions in forestry whose urgency will become more evident with every year.

THE NEED OF SMITH-LEVER EXTENSION WORK IN FORESTRY

THE American Forestry Association has already called attention to the opportunity given to the various states, under the terms of the Smith-Lever law, to provide extension work in forestry among the owners of farm woodlots. So far this field has been almost entirely neglected. The states are rapidly building up their agricultural field forces, consisting of county agents, and are expending sums ranging around \$50,000, which are duplicated by the Smith-Lever law from the national treasury—yet, with one or two exceptions, not one cent of this fund is being used to instruct the farmers in the proper care and development of the woodlot. This cannot be due to the lack of recognition of the value of the woodlot, windbreak and shelter belt on the farm—for as far back as 1876 Minnesota founded a state forestry association to encourage the planting of trees on prairie farms. Its only adequate explanation is the lack of proper organization or aggressiveness on the part of the state educational forces which are responsible for the spread of forestry information. Where no forest

school exists, the agricultural leaders, following the lines of greatest interest or least resistance, simply develop their own work and forestry goes by the board. Where forestry is taught, especially at the state agricultural colleges, it should be possible to arouse the interest of those who must pass upon the expediency of providing extension work in this line. Yet in many instances this has not been done.

There is only one method which promises any degree of success, and that is the employment of a specialist, a forester, to devote his time to the state woodlot problem. County agricultural agents may be relied on to speak a good word for forestry as occasion permits—but never to give it the attention and skilled guidance which it demands.

Every state should without further delay make suitable provision for the employment under the Smith-Lever law of a specialist on woodlots. Considering the urgency of the need for this work, and the wonderful opportunity presented by this law, it is simply astonishing that this has not already been done.

A GREAT FORWARD STEP BY MINNESOTA

THE state of Minnesota has set aside for state forests an area of over 300,000 acres of state lands. This tract is composed of scattered sections and "forties" of land, a part of a much greater area of similar character lying in northeastern Minnesota. The National Government had previously set aside over a million acres in this region as a National Forest.

Northeastern Minnesota, in the northern half of Lake and Cook Counties, is a granitic area of outcropping rock ledges, shallow soils and innumerable lakes and water courses. It is the southern extension of a similar great area in Canada. This region is filled with moose and deer, which thrive under the dual protection afforded by the lack of wagon roads or railroads in the hunting season and the establishment of a game preserve or refuge by the state. Fire has caused great havoc, but there still remains much beautiful pine, spruce and cedar along the lake shores. If the region can be protected from fires and the lake shores preserved in their natural state, this portion of northern Minnesota is destined, within a few years, to become the greatest public playground in the middle West, rivalling Maine in attractiveness, climate, and accessibility.

In setting aside these state lands to be administered as state forests, Minnesota has insured the fullest protection and development of the recreational features of the region, and has rendered an inestimable public service to the entire country, but especially to the Mississippi Valley. This legislation is the first result of the constitutional amendment passed in 1914, by popular vote, which gave the state legislature the power to classify state-owned lands as agricultural or forest land. This victory for sound economics, a wonderful demonstration of the progress of popular education in forestry, was deeply resented by the speculators in cheap lands, to whom all lands have a possible sale value, whether they are in reality agricultural or not. Opposition arose in the legislature, the first fruits of which were the crippling of the State Forest Service by reducing its appropriation. Then followed the attempt in the legislature of 1916-'17 to destroy the independence and integrity of the State Forest Service altogether, under color of fusing it with lands and immigration in the proposed Public Domain bill.

Not only was this entire bill defeated, largely as a result of this attack upon a department which was unselfishly working for the preservation of Minnesota's great

timber resources—but the people's confidence in this department was further manifested by entrusting it for the first time with an adequate area of state forest land.

The time is rapidly passing in our various states when state property in land, timber and other natural resources can be neglected or mismanaged with impunity by officials imbued with the ideas of partisan politics—and the era when such property can be stolen outright belongs to the recent past. But the public has yet to learn that the management of such property is a business which requires stability of policy, the retention of expert managers, and the elimination of the "spoils system," even though the latter

be euphemistically termed "responsibility to the people." State forest property must be kept in the hands of trained state foresters and managed on the merit system. Minnesota has had this system since 1911, and when the people of Minnesota realize that the proper development and protection of their 300,000-acre playground depends upon continuing the efficient and non-political organization of the State Forest Service, under the State Board of Forestry, there will be less chance in the future than there was this year that they will permit legislation jeopardizing their heritage of forest and lake front, that is destined to become the most prized possession of generations yet to come.

A BACKWARD STEP IN VERMONT

VERMONT has abolished her State Forestry Board and subordinated her State Forestry Department to the Commissioner of Agriculture. Incidental to this change, both the state forester and the assistant state forester, comprising the technical force of this department, have resigned.

This upheaval in Vermont presents vividly the struggle between the old and the new ideals in state government in this country. We have stated repeatedly in these pages that state forestry cannot be efficient as a part of the partisan political game as it is usually played. An attempt to do any effective work in fire protection, the rational management of forest lands, especially if state owned, and public education in forestry if entrusted to politicians without professional training is worse than a waste of time, for it will bring forestry into disrepute among the unthinking public.

Vermont made a good beginning in state policy ten years ago, when the State Board of Forestry was established and empowered to appoint a trained forester. They secured and retained until the present year one of the most capable and experienced foresters in the country—a man whose reputation amongst the profession is above reproach. Under this forester the work in Vermont forged rapidly ahead. A state-wide system of fire protection was organized, planting increased rapidly and a policy of purchasing state forests was begun, which promised in time to yield great results as demonstrations of forestry practice.

But close students of state organization have realized that forestry in Vermont was all this time resting upon an unstable foundation, and was after all at the mercy of the strong political machine which for generations has controlled the destinies of this rock-ribbed New England community. The board which had the appointive power was composed of four men, only one of whom was a scientist. Of the other three, the Governor was one, and the Governor appointed the remaining two.

Forestry was originally taken up by a number of men prominent in political life in Vermont, with the sincere purpose of benefiting the state. Under their encouragement the department was launched and was given the needed support. But this was autocracy. Sooner or later the will of these rulers was bound to clash with the interests of the

public—and that is just what happened. A prominent citizen bestowed a tract of land upon the state to be managed as a state forest. Another prominent citizen suggested the name of a retainer for custodian. The retainer was appointed. It shortly developed that the state forest was being run, not according to the ideals of practical and economic forest management, but for the dual purpose of carrying out the personal ideas of the donor and of providing a permanent job for the henchman. To the student of the spoils system in American politics it will not appear surprising that these overlords of an American commonwealth decided that a technical expert who refused to consent to the retention of an incompetent assistant should therefore be gotten rid of, even if in the process it were necessary to tear down the entire department.

Efficiency and party politics are absolutely incompatible. The two cardinal principles of efficient organization are, first, that the man directly responsible for the job shall be qualified to perform the duties required of him, and, second, that he be given the power to select and remove and to oversee and control the subordinates required in carrying out this work. The latter principle was grossly violated, and as a result the state forester resigned and the department itself was reorganized out of existence as a penalty for this insubordination.

The new law provides that the commissioner of agriculture shall act as state forester, in addition to serving as state nursery inspector, director of the agricultural schools of the state, cattle commissioner, and state ornithologist. An amendment, not contemplated by the original law, but secured by the friends of forestry, reads that he must appoint a deputy who shall be a professionally trained forester. The commissioner has the power of apportioning the funds to be spent for forestry, and makes all appointments. The deputy of forestry, therefore, has no real authority, but is a subordinate, from this time forth, who can be expected to give no further trouble. The custodian whose retention precipitated this issue between personal government and business efficiency still holds his job.

AMERICAN FORESTRY calls attention to this situation because of the deep significance of the events described. There are many who claim that state governments in this country do not possess the elements of stability necessary

for success in establishing, and maintaining a state forest policy, and that efforts in this direction are a waste of time. This is not the attitude taken by the Association. We believe that it is possible to establish firm and lasting state forest policies, provided the people of our state commonwealths will recognize the absolute necessity of divorcing forestry from politics, and the means by which it can be

done. We hope that the results of the ten years of constructive work in Vermont will not be lost, and that at some future time the independence and stability of the department will again be established on a much surer foundation of popular enlightenment, rather than the fickle favor of a few powerful men who still worship ancient ideals of government.

STOCK LOSSES AFFECT FOOD SUPPLY

AT this critical time when the world is approaching a period of short food supply, reports from the West show that the severity of the past winter caused serious losses among the cattle and sheep on the ranges. Stockmen throughout the West say the winter was unquestionably the worst they have experienced in twenty-five years. On the Pacific Coast its equal has not been suffered for fifty years. Where the snow generally does not cover the range until the first of February and is gone by April, the middle of last December saw the ranges buried so deep that the animals could not get the forage, and storm after storm followed, with no opening up until the middle of May. For the average six weeks or two months period when the range is deeply covered by snow, the stockman feels safe if he has a ton and a half of hay for each animal. With that period stretched into five months, practically tripled, the usual ton and a half of feed was absolutely inadequate and many animals died of starvation.

In the Southwest the winter was unusually open, which will be about as bad for that section as the heavy snows were for the other sections of the West. While the heavy snows cover forage, their melting gives much-needed moisture to the soil and an abundant grass crop is the result. In the Southwest the absence of snow means absence of forage and starvation for thousands of animals.

Even with the plains now open and an abundant forage crop assured over the greater part of the grazing area, the losses are by no means over, because the season is so late. The plains forage is counted upon to keep the animals in feed until the summer ranges in the mountains are ready, but the fact that these feeding grounds will be six weeks late in bearing a crop of forage grasses means that there will be another feedless period between with resultant losses.

The United States Forest Service, which controls most of the summer feeding grounds in the mountains, as they are located in National Forests, is doing everything in its power to relieve the situation. As soon as the gravity of

the situation was appreciated, telegrams were sent from the headquarters at Washington, D. C., to all District Foresters and Supervisors ordering them to let all the stock that could be fed on to the summer ranges and to do it as soon as the forage was in condition. This may result in some overcrowding of the range and a shortage later, but the need is so great that the chance must be taken.

An idea of the total shortage in the meat supply which will result from the losses can be gained from the following figures: There are normally a few less than fifty million cattle on the western ranges. Of these ten or twelve million are beef cattle. In the average year 500,000 calves are grazed on the National Forests, but figures show that this number will be reduced probably twenty per cent. A reduction this year of one-fifth of the total beef supply will be the result, and next year and the following it will be even more marked, because the steers pulled through the bad year while the cows died off, and the future as well as the present calf crop will be thereby cut down. The sheep losses are much greater than those among the cattle; but, being fast breeders, they will more quickly reach normal numbers again. About six million lambs are grazed in the National Forests on an average, but this year it is estimated that the total will be nearer four million. Only thirty-five or forty per cent of the ewes will have lambs, about half as many as usual, and the result will be a reduction of about one-third in the mutton supply.

Averaging the losses, it is evident that the beef and mutton output will be reduced approximately twenty-five per cent this year, with several lean years ahead, especially in the beef supply. Two years ago Australia lost twenty million sheep, and conditions are as bad or worse in the other grazing regions of the world, so the United States cannot depend on a foreign meat supply and must work out its own salvation. The agitation for economy and conservation in handling food needs no stronger argument than this to prove its case.

ALARGE number of schools in New York State have taken advantage of the offer put out by the New York State College of Forestry to furnish plans free and shrubbery at cost for the improvement of school grounds. Among the villages which have celebrated Arbor Day by putting through landscape improvement plans are Camden, Canastota, Peterboro, Fulton, Clayton, Remsen and Belmont. Plans are under way for several other villages.

THE President has issued a proclamation eliminating 40,160 acres of mineral land from the Crook National Forest in Arizona. A large part of the area is covered by mining locations and there is practically no forest cover. The land has no value for watershed protection. By the same proclamation some thirty-four thousand acres of rough mountain land of no agricultural value are added to the forest.

SAVE THE FRUIT CROP

**We said this LAST YEAR—
We say it again**

This is a year for thrift and service. We must feed not only our own people, but also millions in Europe. The frightful waste of fruit is a national reproach. Help stop this unpardonable extravagance. The fruit we waste would feed Belgium.

THE United States Government urges preserving as a home duty. Preserved fruits are energizing and nourishing. They vary your menus. They reduce the cost of your table.

America's canning and preserving industries are models for the world. Their products are pure, appetizing and wholesome. Support them.

If you preserve at home, put up more fruit than ever before. Get jars and glasses, bottles and crocks ready to save the fruit crop. Put away dried vegetables. The American housewife who practices thrift places herself in the ranks of those who serve their country.

You can show your thrift in no more convincing way than by combating the national tendency to squander this country's wonderful fruit crop. Whether you buy preserved fruits from your grocer or preserve at home you perform a service to your own family and to the Nation.

American Sugar Refining Company



"Sweeten it with Domino"

Granulated, Tablet, Powdered, Confectioners, Brown

Domino Granulated Sugar is sold in convenient-sized bags and cartons

The increased cost of preserving because of the higher price of sugar is less than the increased cost of most other foods

Coal Companies Protect Forests

Organization of the Forest Protective Association for the hard coal region of Pennsylvania has been completed, and application made to Chief Forest Fire Warden Wirt for a form of charter. The following officers have been elected:

President, H. C. Mason, of the Lehigh and Wilkes-Barre Coal Company; Vice-President, A. C. Neumiller, forester for the Lehigh Coal and Navigation Company; Secretary and Treasurer, H. C. Wiener, forester for the Lehigh Valley Coal Company. Directors: H. B. Fell, of the Wyoming Valley Water Company; L. W. Conrad, of the P. and R. Coal and Iron Company; H. A. Christian, of the New Jersey Zinc Company; E. A. Pettibone, of the D. and H. Coal Company; Col. James Archbald, Superintendent Girard Estate; P. W. Lance, of the Spring Brook Water Company; and R. C. Coombe, of Tamaqua.

The charter will be modelled after the one under which a similar association is now operating in the Poconos. The association will operate over about 500,000 acres of forest land, covering practically all of the anthracite region between the Susquehanna and the Schuylkill.

Under Forestry Management

The Empire State Forest Products Association, made up of prominent New York lumbermen and paper manufacturers who control a total area of one million two hundred thousand acres of timberland in that state, has decided to establish a rational and constructive system of forestry for handling these lands. The first step taken was the securing of Professor A. B. Recknagel, of the Forestry Department at Cornell University, as forester. He has been given a year's leave from his duties at Cornell and will establish headquarters for the association at Albany, starting the work at once. In taking up this work, Professor Recknagel will have the benefit of years of practical training and experience in similar work for the government in the United States Forest Service, coupled with four years' experience in teaching forestry at Cornell University. He has specialized in forest management and is the author of a book on "The Theory and Practice of Working Plans," the second edition of which has recently appeared from the press of John Wiley and Sons, of New York. He is a graduate of Yale University in the class of 1904 and of Yale Forest School two years later. Subsequently he spent a year in study and travel abroad.

Levison Resigns

J. J. Levison, B.A., A.F., has resigned his position as Forester of the City of New York to give all his time to his private practice as consulting landscape

forester and arboriculturist. Mr. Levison has been associated with the park department of Greater New York for the past eleven years and has been instrumental in improving tree conditions there. During the past few years he has written a good many interesting articles on tree conditions for AMERICAN FORESTRY.

State Game Protection

"New Mexico Game Protective Association wins fight for a 100 per cent game warden," is the terse way Robert E. Dietz, Secretary of that Association, sums up the results of the campaign of New Mexico sportsmen to save the fast dwindling game supply through honest, competent handling. The campaign lasted over six months and resolved itself into a running fight between the sportsmen and hostile political influences. Public opinion was so thoroughly stirred up and the Association's position was so irrefutably sound, however, that the appointment of a competent warden, "skilled in matters pertaining to fish and game" as the state law requires, was secured despite the opposition.

"Heretofore we have had more law-breakers than game," says Mr. Dietz. "Now we hope for sudden failure of the crop of game hogs and a chance for the game to come back."

A Forest Play

A picturesque and appealing little play for children is "The Spirit of the Forest," by Miss Margaret Dadmun. It not only furnishes fun and entertainment for a cast of from forty to fifty little ones, but carries a real lesson in conservation which, presented in this way, is bound to be effective and to make its indelible impression, not only on the audience but on the players as well. It is written around Gerta, a little peasant girl of ten, and Wilfred, her brother, a little older, and their experience in an ancient grove of trees suddenly enchanted by the Spirit of the Forest—a fairy and her attendant train, who gives to each tree a voice to speak and tell of his love and special service for mankind—a service repaid by neglect and cruel destruction, as the lines go on to say, until the eyes of man are opened by the lack of rain and the drooping and death of the trees, since the Raindrops come no more. Their King—the mighty oak—is slain and felled by man, and the Trees have given up hope when the Spirit of the Forest returns, bringing the Raindrops and Sunbeams, Fairies and Elves with her—and new life to the forest through the Little Oaks which spring up from the freshly moistened earth to carry on the work of serving man. The costuming and grouping of the children in the various parts is very effective and is made more so by the interpolation of appropriate musical selections to carry along the spirit of the play.

We like "The Spirit of the Forest" and wish to congratulate Miss Dadmun on her work. We shall be glad to refer inquiries regarding it to her, and hope that it will be widely read and used.

Liberty Trees of Andorra

That the graceful wistaria which adorns so many of the lovely homes in Germantown, Chestnut Hill, and Mount Airy, Philadelphia, traces its origin, together with quaint Wistar Street, to Richard Wistar, founder of the large Andorra estate, is probably unknown to many of the residents of this charming suburban section, and it is also probably a little known fact that clustered around the name Andorra are some of the quaintest legends of the Pyrenees. Particularly interesting to patriotic Americans is the story that the natives of Andorra plant in their public squares, not flag-poles surmounted by flags, but trees which they call "Liberty Trees." In these days of conservation in every department of animal, horticultural, and agricultural activity, too much emphasis cannot be placed on the importance of tree planting. "Arbor Day" comes only once a year, and too little publicity is given this subject. Trees, ornamental and comfort-giving as they are, are most valuable as conservers of soil moisture. Potato planting in these days of national crisis is undoubtedly a patriotic act, but a closely related task is that of tree planting, and it would not be a bad idea to supplement the popular liberty loan with the planting of liberty trees.

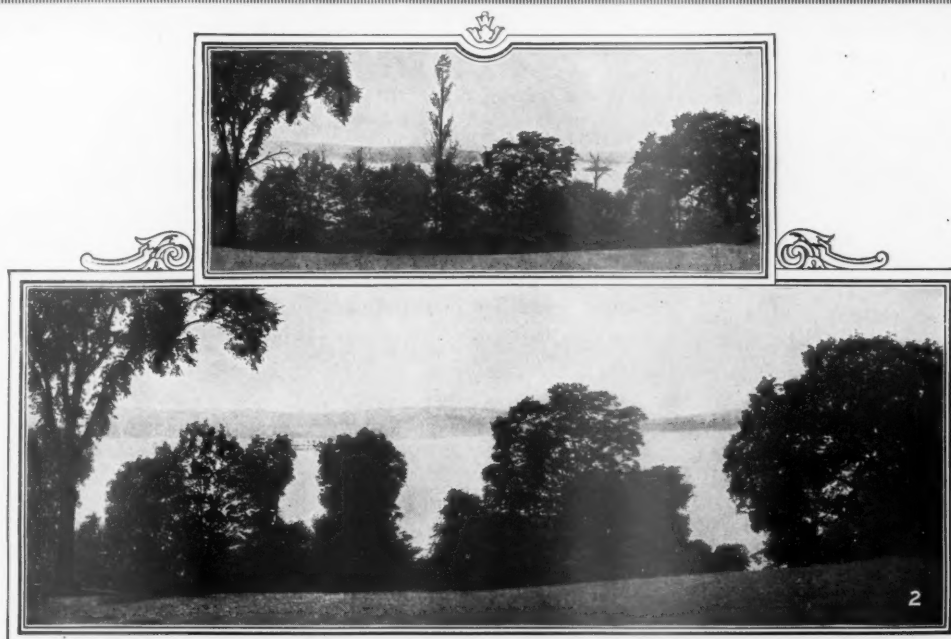
Foresters Enlist

At the present time the New York State College of Forestry is represented in the different branches of the Army and Navy to the following extent: Six men have enlisted in the Naval Reserve Corps; ten have seen Border Service and are still with the Cavalry, Infantry, or Artillery Service; seven have enlisted in the above branches since the outbreak of the war, and between 40 and 50 will attend the Officers' Training Camp at Madison Barracks, New York.

The College also maintains a company in the Syracuse University Regiment. Professor H. B. Waha is captain of the company, and the other commissioned officers are Professor R. P. Prichard and Professor H. H. Tryon.

A Course in Lumbering

A short course in lumbering, designed to meet the demand for a brief and practical training with special emphasis on the engineering aspect of the subject, has been inaugurated at the Georgia State College of Agriculture at Athens, Georgia. It prepares men for such positions as cruiser or surveyor, yard boss, scaler, or woods foreman with lumber companies, or for the position of Forest Ranger in the Government service.



THE BEAUTIFUL TRANSFORMATION OF AN UGLY SKYLINE EFFECT

The principal flaw in the top photograph is the unsightly effect produced by dead branches. Edged against the sky is a ragged, monotonous outline in which there is a minimum of grace, symmetry and beauty.

Now note the lower photograph—observe what a wonderful transformation has been effected by Davey Tree Surgeons!

All ugly, dead branches have been removed, and artistic grouping has been achieved by the elimination of certain unimportant trees and bushes. What refreshing variety of outline is now presented; what charm lies in its perfect simplicity!

Possibly your estate offers similar opportunities for enhanced beauty—perhaps a little judicious artistry can bring out "hidden wonders" of which you are now unconscious.

BUT—be careful to whom you entrust this important work. Trimming and cutting, *incorrectly* done, are dangerous. Thousands of trees are lost every year because their owners do not realize the degree of highly expert knowledge and experience this work requires. More than half the decay in trees is directly traceable to improper trimming.

Take the safe course—

—and put your trees in the hands of Davey Tree Surgeons. Tree Surgery, as they practice it, is

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FOR SAFE TREE SURGERY

Every real Davey Tree Surgeon is in the employ of the Davey Tree Expert Company and the public is cautioned against those falsely representing themselves

scientifically accurate and mechanically perfect—the result of the life study of John Davey, "The Father of Tree Surgery," augmented and refined by the massed experience of the greatest body of expert tree men the world has ever known.

Davey Tree Surgeons are the only Tree Surgeons officially endorsed by the United States Government. They have treated and saved the priceless trees at the National Capitol, White House, Naval Observatory, Fort Meyer, Charleston (S. C.) Navy Yard, Annapolis Naval Academy, West Point Military Academy, etc.

They are the only tree surgeons endorsed by thousands of estate owners—prominent men and women whose recommendations you can accept with complete confidence. And they are the only Tree Surgeons who are backed by a successful and responsible house, amply able to make good in every instance, and not needing, for the sake of temporary existence, to sacrifice in the slightest degree its high standards.

Write today for free examination of your trees—

and booklet, "When Your Trees Need the Tree Surgeon." What is the real condition of your trees? Only the experienced tree surgeon can tell you fully and definitely. Without cost or obligation to you, a Davey Tree Surgeon will visit your place, and render an honest verdict regarding their condition and needs. Write today.

From Mr. Lisle R. Beardalee,
Wilmington, Delaware.

"The work done by your company upon an old tree in my yard is very satisfactory and a remarkable demonstration of what can be accomplished by the scientific methods followed by your concern."

From Mr. Arthur Heurtley,
The Northern Trust Company,
Chicago, Ill.

"The work done on my trees by your foreman and his associates has been very satisfactory, so much so that we have been at considerable pains to canvass the neighborhood so as to give the boys some extra work while in the vicinity."

From Mr. Wm. R. Kenan, Jr.,
Lockport, N. Y.

"Some twelve or fourteen years ago while visiting at my sister's summer home at Mamaroneck, N. Y., I saw your father with a very large corps doing tree surgery on that place. It impressed me so forcibly and, in later years, the results were so convincing that, upon the purchase of this place, I concluded to have your company do such work as was necessary here. The work has been entirely satisfactory."



JOHN DAVEY
"Father of Tree Surgery"

BOOK REVIEWS

The Way to Study Birds, by John Dryden Kuser. G. P. Putnam's Sons, New York and London. Price, \$1.25.

The dominant thought of the reader of this book is that it was written by one in whom the love of birds is inherent. Mr. Kuser treats the birds as his intimates, with a familiarity born of close association and sense of comradeship. He knows their ways, their haunts, their individuality and their music. He knows when, where, and how to find them, and his book shows that he knows how to make them his friends when found. In short, the volume may well be accounted an important addition to bird literature.

Fundamentally, the author has sought to make bird identification a simple matter for the non-expert. He recognizes that information on this subject has not been easily available to the beginner in bird-study. His aim has been to supply this information in simple terms and to make it unnecessary for the student to wade ignorantly through a complicated mass of terms or descriptions or to go bird-hunting without the remotest idea of what he may expect to find or how to know when he has found it. With this book as a guide the beginner may attain acquaintanceship with a number of the bird species and acquire a good store of knowledge as to their habits. While intended more as a course of study than a book of reference, the volume is valuable along both lines.

Of the birds found in the neighborhood of New York the book describes 50 species and gives suggestions and information that will make possible identification of others. The data include haunts, description, field-marks, size and shape, song, seasonal abundance and comprehensive remarks as to individual characteristics. It is in these "Remarks" that Mr. Kuser gives the impress of his own bird-loving, and no student of our feathered neighbors can afford to miss the liberal education afforded by the ownership and study of the book.

"The Origin of the Lumber Industry," by William Compton, Ph.D. American Lumberman, Chicago.

Mr. Compton is a member of the Federal Trade Commission. The book contains a vast fund of information, presents a balanced view, ethically speaking, of the lumber industry, and it develops much that has been poorly understood in the economics of that industry. No publication comes to mind in which so many significant facts relating to timber and the lumber industry are brought into so small a compass. The census figures for

production of lumber from 1850 to date, the figures on sawmills, their number, capacity, and capitalization, the history of production by regions, a summary of the timber resources of the country, an insight into the degree to which timber ownership is now concentrated, and the figures on stumpage, past and present, are all connected in a logical fabric embracing the most timely and important problems and tendencies in the field. The big feature of the work is his development of the relations of price. Under his handling that appears as the crucial point of the whole matter. Quantity and quality granted, the desire or necessity of the people is expressed in price, which varies with the economic demand and other factors. Local exhaustion of timber supplies, separation of producing from consuming centers, and increased freight charges are a few of the factors affecting price. The lumber trust bogey is put to rout through a picture of the competition within the industry and a broad study of the history of lumber prices, which, although showing apparent increases, involve a slight relative loss from 1907 to 1913. Compton concludes that "natural influences furnish adequate explanation of lumber prices." The book is professedly an economic one strictly and as such can be read with much profit by the lumberman, the forester, and the conservationist.

"Evergreens, How to Grow Them," by C. S. Harrison, President of the Nebraska Park and Forestry Association. 95 pages, 19 illustrations. Webb Publishing Company, St. Paul, Minn.

This work is written chiefly to aid the farmers of the prairie States in the selection and care of evergreens which will produce lumber, prevent erosion, and beautify the treeless landscape. Brief descriptions of adaptable trees, facts on how to raise them from seed, transplant them, pack them, ship them, etc., make the book practical. At the same time, the numerous illustrations and the well-worded descriptions of scenery, through which the author sprinkles paragraphs which show a broad vision and idealism, add a touch of æsthetic interest.

"Georgia Forest Trees" has been chosen as the title for the annual publication of the Forest Club of the Georgia State Forest School, Athens, Georgia. It lists seventy-six trees native to Georgia, giving a short description in each case, covering the distribution, form and other characteristics, nature of the wood, and its uses. Being dedicated to the school children of Georgia, it should prove useful in advancing the cause

of conservation of Georgia's forests by "instilling in them a deep and lasting affection for nature."

The Book of the Peony, by Mrs. Edward Harding, published by J. B. Lippincott Company, Philadelphia and London. Price, \$6.00 net.

This is the only book on this well-known and greatly loved flower, and being such it is complete, practical and beautiful. As a printer's production it is a work of art. It has twenty illustrations in full colors and twenty-two in doubletone. The history and the development of the peony are presented by Mrs. Harding in a delightful manner. She deals specifically with each variety, and gives so much practical information and instruction that the lover and the grower of peonies will find the book unusually profitable.

Forest Fancies, by Lucy C. Kellerhouse. Duffield & Co., New York. Price, \$1.50.

Here are seven charming stories of the life and trees of the forest told delightfully by one who knows and loves the trees and woods. The stories are illustrated with twenty-four full-page prints excellently done. The book is one which should appeal to every lover of the forests.

The *Forestry Annual*, issued by the Forestry Club of the Michigan Agricultural College, East Lansing, Michigan, has just made its appearance for the second time. Attractive in form and make-up and filled with varied and valuable information, it makes a strong bid for the "attention and interest of the student body, alumni, and friends of M. A. C. to the continually widening field of forestry." The large number of forest schools that are issuing annuals of this nature, and the work being done by the students themselves, gives an indication of the keen interest with which young men are entering the forestry field. The future of forestry in his country is safe in the hands of such men.

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North Carolina's Losses

North Carolina suffered a loss of over three and one-half millions from forest fires in 1916, according to advices from the Forestry Division of the State Geological and Economic Survey. For the seven preceding years the damage had averaged about \$620,000 per year, making the 1916 losses about six times greater than the average. The area burned over reached a total of 977,000 acres with the consequent destruction of about 248,000,000 feet of timber. The greatest portion of the financial loss was in the destruction of the by-products of the forest, as North Carolina produces large quantities of turpentine and naval stores.

"In spite of figures of such magnitude," the report continues, "the Legislature adjourned without making any appropriation whatever to prevent fires." Measures which would gradually but surely reduce the annual waste have been recommended to each successive General Assembly, but so far no definite, constructive action has been taken. The forest fire law, recommended and endorsed by the Survey, the North Carolina Forestry Association, and the United States Forest Service, was passed two years ago, but no funds were appropriated to put it into effect, which failure effectually ties the hands of the conservationists.

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CANADIAN DEPARTMENT

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During the past month the last important section of Forest land in the Province of Quebec was organized into a coöperative fire protective association. The timberland owners of the section lying north of the St. Lawrence River, from the St. Maurice River east to the River Laval and north of Lake St. John, formed a coöperative association, to be known as the Laurentian Forest Protective Association, and chose for their Manager Mr. R. L. Seaborne, who was for several years a district inspector for the St. Maurice Forest Protective Association. This association will protect about 20,000 square miles, covering some of the most valuable timberlands in the Province and owned by some of the most important paper and lumber companies. Among these Price Bros. Co. are the largest limit holders in Quebec. Hon. William Turner is the President and Mr. Kernan, of the Donnacona Pulp and Paper Co., is the Vice-President and Mr. Paul G. Owen, the Secretary-Treasurer. There are now four of these coöperative associations which practically cover the most important timbered areas under license from the Government, the Ottawa, the St. Maurice, the Laurentian and the Southern St. Lawrence, and these

have all joined themselves into a federation, called the Quebec Forest Protective Association, which will have charge of all matters of general interest and will handle the necessary literature and propaganda work and also matters with the Provincial and Federal Government Departments.

The Laurentide Company, Limited, in its planting operations this summer will plant about one million trees.

The Riordon Paper Company, Limited will plant about two hundred and fifty thousand trees in the neighborhood of St. Jovite.

Robson Black, Secretary of the Canadian Forestry Association, has just completed a very successful lecture trip through the Prairie Provinces and British Columbia, where he has succeeded in interesting the Government Departments concerned in fire protection in introducing legislation requiring permits for the setting of clearing fires at any time during the summer months. Now that the Prairie Provinces have taken this action only New Brunswick and Nova Scotia need to come into line. If all goes well Canada will soon have adequate protection against forest fires from coast to coast, which will be the most important step in the conservation of our natural resources.

The forest survey of the Province of New Brunswick is making satisfactory progress and is being carried on economically and thoroughly. The outstanding fact demonstrated by this survey is the great fire loss in the past and the necessity for a rational and efficient fire protection service for the future.

The Quebec Forestry School students are about to go into their spring quarters for their field work at Burrill's Siding, where they have a thousand acres of land on which they can practice surveying and get experience in silviculture and different methods of lumbering.

The Research Council of Canada has decided to set aside one hundred square miles in the Petawawa Military District in Ontario. A sufficient grant will be made to carry out a thorough survey of this area next summer, the work to be done by the Dominion Forest Branch. Beyond the survey a program has not yet been prepared. The Research Council for Scientific and Industrial Work in Canada has been formed for the purpose of ascertaining and tabulating the various agencies which are now carrying on research work in universities and colleges, in Government laboratories, business organizations and industries, scientific associations or by private persons; also to ascertain the lines of work being done and the facilities and equipment and especially the man-power available for such

BOOKS ON FORESTRY

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This work is being rapidly organized and the following organizations have volunteered to help in it: The Canadian Society of Civil Engineers, Canadian Mining Institute, Canadian Manufacturers' Association, Society of Chemical Industry and the Canadian Society of Forest Engineers. The country will be divided up into districts and volunteer field-workers will cover these districts and gather all available information.

There is a considerable shortage of labor this spring, many of the companies having difficulty in getting sufficient men for their drives. The spring has been late and dry and there is therefore not as much water as is needed for driving operations.

The Quebec Government is taking an interest in the reforestation of its burnt-over lands and is considering arrangements by which the limit holders will undertake this work.

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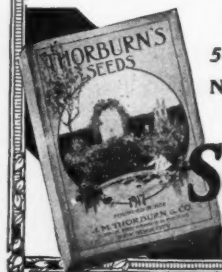
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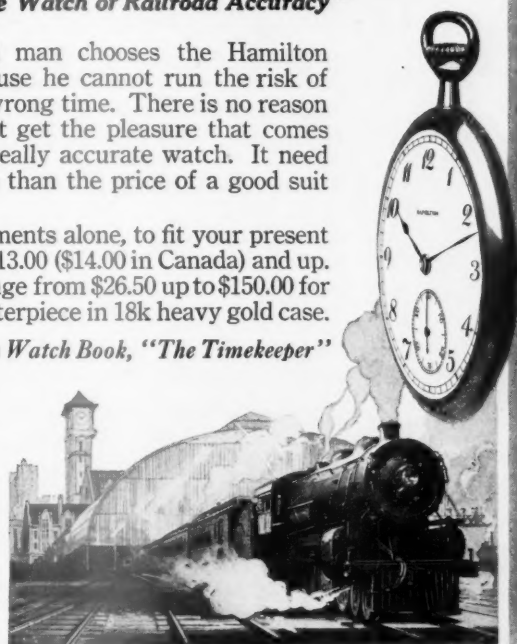
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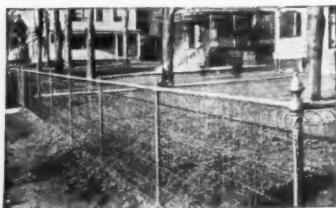


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Mr. Robert E. Friend, Second Ward Savings Bank, Milwaukee, Wis.:

"I cannot commend too highly the work you have done, both this year and last, on our place at Pine Lake. Your work on the University Club trees here in the city, under my supervision, was also very good indeed."

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750,000,000 Feet National Forest Timber To Be Offered For Sale

The Forest Service is now examining and will offer for sale as a pulpwood proposition the merchantable live and dead timber marked or designated for cutting on an area located in approximately Township 30 N., Ranges 8 and 9 E., W. M., on the watershed of the Stillaguamish River, Snoqualmie National Forest, Washington, estimated to be 750,000,000 feet B.M., more or less, of western hemlock, silver fir, mountain hemlock, Sitka spruce, Douglas fir, and western red cedar timber, approximately 70 per cent western hemlock, silver fir, mountain hemlock and Sitka spruce suitable for pulpwood. Formal advertisement of this timber will begin and sample contract will be prepared not later than September 1, 1917. Those interested may obtain further information from the

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SALE OF TIMBER RED LAKE INDIAN RESERVATION.

SEALED BIDS, MARKED OUTSIDE "BID, Red Lake Timber," and addressed to Superintendent of the Red Lake Indian School, Red Lake, Minn., will be received until 12 o'clock noon, Central Time, September 26, 1917, for the purchase of timber upon about 51,300 acres within Township 150 N., Ranges 32, 33, 34, and 35 west; Township 151 N., Ranges 32, 33, and 34 West. The sale embraces approximately 72,000,000 feet, of which about 65% is white pine, about 27% Norway Pine and the remainder Jack Pine, Spruce, Balsam, Cedar and Tamarack. Each bid must state for each species the amount per thousand feet Scribner decimal C log scale that will be paid. The minimum prices per M feet, B. M., which will be accepted are as follows: White Pine \$10, Norway Pine \$8, Spruce \$5, Tamarack \$3, Jack Pine \$3, Cedar \$3, Balsam \$2.50, Cedar and Tamarack ties \$0.08, Spruce and Balsam pulp \$1 per cord. Cedar posts, 7 feet long, 3 and 4 inch tops, \$0.01; 7 feet long, 5 to 7 inch tops, \$0.015; 8 feet long, 4 to 7 inch tops, \$0.02; 8 feet long, 8 and 9 inch tops, \$0.05; 10 feet long, 4 to 7 inch tops, \$0.025; 10 feet long, 8 to 10 inch tops, \$0.08; 12 feet long, 4 to 7 inch tops, \$0.03; 14 feet long, 4 to 7 inch tops, \$0.035; 16 feet long, 4 to 7 inch tops, \$0.04; 18 feet long, 4 to 7 inch tops, \$0.06. Cedar poles, 20 feet long, 4 to 8 inch tops, \$0.08; 25 feet long, 5 to 8 inch tops, \$0.12; 30 feet long, 6 to 8 inch tops, \$0.30; 35 feet long, 6 to 8 inch tops, \$0.60; 40 feet long, 7 to 9 inch tops, \$1.25; 45 feet long, 7 to 9 inch tops, \$1.50; 50 feet long, 7 to 10 inch tops, \$2.25; 55 feet long, 7 to 10 inch tops, \$3; 60 feet long, 7 to 10 inch tops, \$4.50. Each bid must be submitted in triplicate and be accompanied by a certified check on a solvent National Bank in favor of the Superintendent of the Red Lake Indian School in the amount of \$2,500. The deposit will be returned if the bid is rejected, but retained if the bid is accepted, and the required contract and bond are not executed and presented for approval within thirty days from such acceptance. The right to reject any and all bids is reserved. For copies of the bid and contract forms and for other information, application should be made to the Indian Superintendent, Red Lake, Minnesota. Washington, D. C., July 13, 1917. CATO SELLS, Commissioner of Indian Affairs.

SALE OF TIMBER FLATHEAD INDIAN RESERVATION

SEALED BIDS, MARKED OUTSIDE "BID, Flathead Timber, Ronan Unit" and addressed to Superintendent of the Flathead Indian School, Dixon, Montana, will be received until twelve o'clock noon, Mountain time, Tuesday, September 11, 1917, for the purchase of the merchantable timber upon tribal and allotted lands situated within Sections 4 and 5 T. 19 N., R. 19 W.; Sections 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 32, 33, and 34 T. 20 N., R. 19 W.; Section 21, 22, 27, 32, 33, and 34 T. 21 N., R. 19 W.; Section 1 and Section 12 T. 20 N., R. 20 W. M. P. M. containing approximately 57,000,000 feet of timber, over 80 per cent Western Yellow Pine. Each bid shall state the amount per thousand feet B. M. offered for Yellow Pine (including "bull pine") and the amount per thousand feet offered for Fir, Larch and other species. Each bid must be submitted in triplicate and be accompanied by a certified check on a solvent national bank, drawn in favor of the Superintendent of the Flathead Indian School, in the amount of \$2,500. The deposit will be returned if the bid is rejected, and retained as a forfeit if the bid is accepted and the bond and agreements required by the regulations are not furnished within 60 days from the date when the bid is accepted. No bid of less than \$3 per thousand feet for Yellow Pine and \$1.25 per thousand feet for Douglas Fir, Larch and other species will be accepted. The right to reject any and all bids is reserved. Copies of regulations and other information regarding the proposed sale including specific description of the sale area may be obtained from the Superintendent of the Flathead Indian School, Dixon, Montana. Washington, D. C., May 4, 1917. CATO SELLS, Commissioner of Indian Affairs.

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